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THE NEW YEAR.

Have you heard the voice of the New Year faintly calling
For earnest support and cordial assistance,
sadly needed?
Oh, World of Men, will you lift up humanity, bleeding?
Resolve while the gates of Janus, slowly,
are closing.
Will you strive for the happiness of unnumbered souls,
Suffering anguish or quavering in hopelessness, dumbly aspiring?
Will you work for the wealth of cooperating nations and peoples,
Struggling, famished, scourged, or oppressed?
Will you serve mankind that health may revivify bodies,
Prostrate, with life quietly ebbing?
Will you heal wounds that only time can efface?
Will you teach mankind to live well and to be well?
Will you awaken to the value of a single human life?
Create vital assets instead of penalized liabilities.
You have talked in terms of men and gold,
Of instruments of destruction,
Of armaments, mighty navies, and death dealing war.
Think now of manhood, womanhood, childhood,
Powerful, vigorous, resolute, majestic in harmonious action.
Contemplate the potentials of peace, long enduring.
The world cries for a stronger race.
Put physical health before gross strength.
The world clamors for intelligence.
Esteem mental capacity and attainment beyond freakish genius.

The world pleads for nobility of character.
Cultivate a conscience for militant justice,
Rather than the passive realization of moral truths.

I bid you hold fast to the promises of 1918,
For truth and justice, democracy and the social weal.

Help make life worth living.

Aid the world to develop a more capable and more spiritual species of man.

Free man from every enemy that would beat or press him down.

May 1919 bring to all a rich measure of peace, prosperity and health.

—IRA S. WILE.

The Silver Service Stripe.—The Department of War has seen fit to decree that silver chevrons are to be worn by those of the military forces who have not had the opportunity of serving overseas. It is patent that obvious distinctions are created between the wearers of the gold service stripes and the wearers of the silver service stripes. It is undoubtedly true that after a short period of time the only outstanding differences between men will be between those without stripes, and those with them. For the time being, there is apparently a discrimination as to the value of services or the importance of the place of service between men who should and do possess the same standing in the eyes of the general public insofar as their patriotism or willingness to serve is concerned.

Whether as volunteer or as draftee, all

men have performed their duties and lived up to their obligations in the places to which they were ordered and for the period of time the Government demanded their presence. Many men whose enviable good fortune made them a part of the expeditionary forces had served the colors for briefer periods of time than brothers in arms who were retained for necessary and important duties on this side of the Atlantic. Similarly, a large group of soldiers who succeeded in crossing the broad mine-sown sea had no greater active participation in theraging conflict than colleagues who were serving in camps or cantonments, in the quartermaster's department, the ordnance department, or in the medical department in the United States. Nevertheless, gold and silver stripes are awarded as badges of distinction to differentiate these two bodies of men on the basis of the fact that one has and one has not been transported three thousand miles from the United States.

The work of the medical department of the army wherever established was largely uniform, with the exception of that portion engaged in services at base hospitals, casualty clearance stations and first aid stations within the zones of advance or evacuation. The diseases and accidents among soldiers were practically identical at home and abroad. The character of the medical services performed was of the same high grade and the results were not dissimilar on either side of the ocean. The splendid manifestations of spirit, loyalty and cooperation were in no wise dissimilar and scarcely warrant any line of demarcation being drawn by the character or the color of the service stripe as determined by official mandate.

It is possibly a trifling matter around which to build up discussion and argument, but it would appear to have been a finer

tribute to all the forces if no belittling distinctions had been created, based upon differences of location which were beyond control of the individuals concerned. In truth, men served when, where, and how they were directed. The gold stripe is not to be regarded as an index of merit but of luck. It is not an evidence of greater valor, intelligence, capability, or achievement, but a symbol of chance overseas duty. This is scarcely a basis for separating a group of soldiers and sailors from their equally valorous and willing companions in arms.

The fewer distinctions between individuals that are created in a democracy, the more democratic is its character. The glory of the war is sufficient to cover all men with honor, and under the draft system, which levels all plans of social or economic status, it appears to be particularly unwise to create a differentiation which unhappily merely stresses the importance of what the gold stripe really represents—a trip in a transport.

Garage Sanitation.—From time to time instances are reported of individuals who have been suddenly overcome by fumes in private or public garages. It has generally been assumed that the symptoms developing are due to poisoning by carbon monoxide. A preliminary study of the health of workers in garages by Louis I. Harris, *Monthly Bulletin of the Department of Health of the City of New York* (November, 1918), presents the facts and figures relating to 43 garages covered during the investigation. While evidences of marked occupational disease were not definitely ascertained, various shortcomings in hygiene and sanitation were noted.

Occasional records were secured of mod-

erately severe manifestations of illness, presumably attributable to carbon monoxide. The principal symptoms complained of included nausea, vomiting, headache, weakness, pallor and a subjective feeling of intoxication. While this symptom-complex may be due to the inhalation of fumes of combustion, it is not at all unlikely that a certain measure of chronic intoxication is developed as the result of the slow and insidious action of carbon monoxide inspired for varying periods of time during an indefinite number of days. The study of garages was made during a season of the year when open window ventilation was practiced and there was little opportunity to determine with scientific accuracy the existence of either acute or chronic monoxide poisoning.

It is not at all unlikely that garages may effect or condition some physical debility, especially during the winter months when their underheating causes the air in the cylinders of the engines to become cold, and starting difficulties result, so that prolonged running of the engine is required for warming up. With a large number of motors operating within a few hours in a moderately sized garage, it is not improbable that carbon monoxide, carbon dioxide and other gases of combustion are present in undue volume in the garage atmosphere. Adequate ventilation and proper heating of garages constitute the natural prophylactic defenses for preventing the accumulation of the harmful products of combustion. Even during the months of May and June, when the air of the garages was tested, fumes and gases were found present in 43 out of the 43 garages, suggestive of the greater possibility of danger during the winter season.

Among other evidences of the lack of health protection of garage workers, there

might be mentioned the frequency of unguarded machinery, the lack of cuspidors to partially localize the constantly promiscuous expectorations, the occasional presence of the common towel and common drinking cup, and the absence of lockers for the protection of street clothing. The fact that 127 causes for complaint were noted in the 43 garages is indicative of the value of inspections of this character, as well as the all too frequent neglect of the sanitary aspects of an occupation which involves a moderate degree of hazard to the respiratory and nervous systems.

The facts which were ascertained for large public garages merely serve to call attention to the importance of the entire subject. Private garages, even those utilized for a single motor car, may be equally dangerous to the chauffeur or owner-operator if due and proper precautions are not taken to insure adequate ventilation and proper conditions of heating during the winter months. The dangers of carbon monoxide poisoning are not to be overlooked even tho the number of fatalities due to poisoning of this character may not be large. The effects of exposure over a considerable period of time are varied in character and depend largely upon the location of the effects in the attack upon the nervous system.

Further investigations of this character are necessary in order to arrive at definite conclusions as to the relative hazards to garage workers. A more complete study is necessary before definite regulative ordinances or laws can be formulated to protect those who earn their livelihood in garages.

Blindness of the New-Born.—The efforts which have been made to aid the pre-

vention of blindness are of as great importance as the splendid attempts now being made to re-educate soldiers and sailors who have been blinded in war. It is difficult at times to estimate the accomplishments of those who are working thru voluntarily established organizations in behalf of the physical welfare of communities. The December number of *The News Letter* (published by the National Committee for the Prevention of Blindness, Inc.) presents some statistical material which is stimulating and encouraging. The fact that progress has been made in controlling ophthalmia neonatorum is manifest. The figures include statistics from 41 schools in cities having day school classes for the blind during 1917 and 1918, and 40 schools in cities having day classes reporting their new admissions in 1917 and 1918. In 1907-1908, 26.6 per cent. of the children admitted into classes for the blind in schools were handicapped because of ophthalmia neonatorum. In 1912 and 1913 this percentage had fallen to 22.8 per cent. while in 1917 and 1918 it had reached the low level of 14.7 per cent.

Recognizing the greater interest that has been taken in this condition and the more general attention that is being given to the education of blind children under public auspices, it is very suggestive that the per cental decrease of new admissions of children blind from this single cause is due to the continued efforts to prevent the occurrence of infected eyes among the new-born. The higher standards of obstetric practice on the part of hospitals, private physicians and midwives are admitted. State laws demanding the use of silver solutions immediately after birth may be regarded as the most significant factor in reducing this most calamitous infection. The finest form of

conservation of vision is to be found, not in the institution of classes for the blind and the partially sighted but in the elimination of ophthalmia neonatorum, a disease readily preventable, and the existence of which is a constant challenge to the thoroughness of obstetrical attention.

Infectious Diseases in Hospitals.—The control of infectious diseases of children depends largely upon administrative problems involving the securing of adequate isolation and quarantine. Hospitalization has proved difficult for many years, particularly in smaller communities where it seemed advisable to erect an isolation plant. With the old idea that infection is air borne, it appeared to be necessary to establish entirely separate buildings or to create a hospital plan whereby ward isolation might be made complete. Recent experience warrants a new opinion in regard to the management of contagious diseases treated in hospitals, insofar as methods of prevention of cross infections are concerned. *Public Health Bulletin Number 95* is based upon a study of 6,078 cases of infectious diseases of children among immigrants treated by officers of the Public Health Service at the hospital on Ellis Island. The statistical analysis of their results indicate that cross infection in hospitals is avoidable in direct proportion to the increase of the number of isolation units. The isolation units, however, may be within the ward.

The practical recommendations for hospital construction provide for the abolition of the common admission room, and the abandonment of the common bathroom for newly admitted patients. Convalescent wards should be small and no unit should

accommodate more than five patients and most of them should contain but one bed. It should be possible, however, by the use of glass in the partitions, for convalescent children to see each other without the possibility of direct contact. The partitions may be of the cheapest material so that the cost of construction need not be high.

Patients suffering from contagious diseases should have considerable individual attention and nurses should be employed for only eight hour shifts. Each nurse should be called upon to care for no more than six acutely ill or twelve convalescent patients. This is, of course, a marked variation from the present custom in most hospitals.

The details of hospital organization and management for the treatment of contagious diseases represent the summation of a large experience, and merit thoro study, particularly by health officers in small cities or by county officials. For this purpose, the bulletin above referred to, prepared by J. G. Wilson, Past Assistant Surgeon of the United States Public Health Service, affords excellent material, clearly stated and rationally organized and presented.

The conclusion of Dr. Wilson is of the utmost social and medical significance. He asserts the "practicability of treating contagious and non-contagious diseases in the same hospital and with the same nursing forces." He demonstrates that while it is not advisable to use the same open wards for both classes of cases, it is nevertheless practical to eliminate the danger of cross infection if these wards are cut open into small cubicles and the proper nursing technic enforced. "As a natural corollary to this method, it would follow that all general hospitals should have provisions for treating cases by the cubicle system and thus be pre-

pared to receive contagious cases in emergency. It would also follow that small communities which cannot afford both a general and an isolation hospital should plan their general hospital and its management so that contagious diseases might be received as freely as non-contagious."

If it be possible to utilize general hospitalization with slight modifications for the treatment of contagious and non-contagious diseases, a tremendous saving can be effected in the cost of hospital construction and administration, with a corresponding gain in the efficiency of control of the infectious diseases of childhood. Of greater importance is the fact that by this method of cubicle management of contagious diseases, cross infections may be eliminated and thus the danger of the disease contracted in the hospital may be decreased.

The theory of infection thru the direct contact of patients as opposed to air borne contagion is responsible for a recognition of our earlier timidity in the hospital treatment of infectious diseases. If the experience at the Ellis Island Hospital is corroborated, a distinct step in advance will have been taken in the handling of the types of diseases under discussion. Similarly, as a result of such future proof, there will be greater freedom in the hospitalization of infectious diseases with corresponding assistance in limiting their spread.

A Labor Health Program.—Coordinated public interest is essential for practical and effective public health administration. The harmonious interaction of all branches of organized society is of paramount importance. Health is not a matter of capital or of labor, of Caucasian or of

Negro, of rich or poor, of Catholic, Protestant, or Jew. It is preeminently a potential attribute of human beings, and may be secured only thru the willingness of the general public to work out a definite policy which includes the willingness to pay for it.

Numerous programs have been suggested for increasing national vitality. Many have had to deal purely with problems relating to contagious diseases and civic sanitation. In an address before the Sociological Section of the American Public Health Association, Arthur E. Holder, a representative of labor and a member of the Federal Board for Vocational Education, offered for consideration The Labor Program for Health and Safety (*American Journal of Public Health*, December, 1918). The most striking feature evident in the proposed scheme is the stress placed upon matters ordinarily regarded as of economic importance. There has been, of course, a more or less academic interest of health officials in economic and social affairs, owing to continued reports of the intimate relations between standards of income and standards of familial health. It is patent that increased stress must be placed upon the so-called economic program as a factor in raising the health conditions of the country.

The labor program proposed includes a demand for a shorter work day, with a maximum eight hours for all manual toilers; a release from work at least one full day in seven; the establishment of a higher minimum wage; the elimination of the sweatshop system; the abolition of night work by women and minors; the cessation of child labor; equal pay for equal work regardless of sex; the Saturday half holiday fifty-two weeks in the year. The economic value of these propositions is ap-

parent, and their health values are no less clear to those appreciating the relation between fatigue, disease and accidents, and higher wages as related to improved conditions of nutrition, clothing, and shelter.

Labor believes in fresh air and urges the establishment of playgrounds for children, adjacent to all public schools, the creation of large open breathing spaces or parks in some sense of nearness to congested centers of living.

Educational impetus is suggested for the encouragement of out-door exercise, the formation of fresh air clubs, the inauguration of efforts to emphasize the need for better rooms and fresh air ventilation in all houses and living apartments.

Labor does not demand prohibition, but recommends the cultivation of temperate habits, including the diminution of the use of intoxicants. More valuable is the request for conferences between employers, workers and physicians, and the development of community forums where health conditions can be openly discussed by parents and physicians. There is the customary demand for rigid inspection and enforcement of laws in mines, mills, factories and workshops, and the demand for suitable ventilation, sanitation and safety devices under every condition where a lack of these will work to the disadvantage of those employed.

Labor appreciates the value of medical and dental inspection in public schools at public expense and desires their continuance and extension. It advocates the establishment of a modernized scheme of physical education at public expense with a further provision for the free examination of adults by the medical forces employed to secure the optimum health conditions in the school.

A Secretary of Health in the Cabinet.—

The most significant suggestion, tho by no means a new one, is the demand that all Federal health agencies be concentrated in one department with a cabinet member serving as secretary. This resumé indicates the economic and social scope of labor's program for health, tho it obviously does not represent the full program designed to consider every phase of the subject. Insofar as it goes, it merits careful consideration of health officers and all persons, medical men or laymen, who possess a social conscience and a practical interest in the improvement of public health.

For political and other reasons, there has been no effort made on the part of municipal, county, or state health officers to participate actively in the promulgation of laws, ordinances, or enactments that have had for their purpose the alleviation of conditions admittedly due to economic maladjustments. In the fulfilment of obligations, there is every reason to believe that the point of view of health officials will be of pronounced importance in the future in securing the passage of bills which seek to provide for more reasonable opportunities for correct living.

If poverty is accepted as a most serious factor in the causation of disease or in the creation of susceptibility to disease, it is manifestly proper for public health officials to align themselves with those social forces seeking to reduce conditions militating against the general physical and social welfare of their communities. The accumulation of evidence demonstrates the necessity for attacking economic conditions as a basis of improving the health standards of the country. The cases tried before the United States Supreme Court dealing with the ten-hour law, the regulation of night work for

women, and minimum wage law were fought largely upon facts indicating the anti-social effects of long hours, low wages, fatigue, industrial strain, illiteracy and similar elements as manifest thru increased diseases, disability and racial deterioration. If the highest court of the nation is ready to take cognizance of health conditions as a basis of judgment in determining the justice of legislation, it is about time for physicians to recognize the interdependence of health and economic status.

It is impossible to divorce the physical welfare of a country from its economic regulations. The program of labor, therefore, demands recognition and understanding, cooperation and support insofar as is possible under existent systems of public health administration.

Diseases and Returning Soldiers.—The return of soldiers and sailors to civilian life will test the efficacy of our quarantine regulations. While the American expeditionary forces have not suffered seriously from exotic epidemic diseases, most careful oversight is required to prevent an introduction of such diseases as cholera, typhus and plague by a small group of returning men and women who may possibly be carriers of these diseases, ordinarily rarely found in this country. This fact has already been recognized by the Public Health Service and attention is called to the methods of control in the *Public Health Report*, December 6, 1918. Explicit instructions have been issued to all quarantine officers, "urging the most careful examination, including laboratory tests, of all units liable to be carriers of these diseases." Officers of the Public Health Service familiar with quarantine

procedure have been sent to various ports of Europe where they will supervise the enforcement of the United States quarantine regulations applicable at foreign ports against passengers and ships destined for ports of the United States. The United States military authorities will cooperate in every way to provide for the examination, delousing, and disinfection, when necessary, of all troops prior to embarkation.

Supplementing the efforts in foreign ports, all soldiers will be subjected to the United States quarantine regulations at the port of entry, and this will include the holding of all suspicious cases for a period of observation and examination, the delousing of clothing and other infested materials so as to insure a clean bill of health for all those about to return to civil life in the communities whence they came.

The dangers of infection from those returning from foreign shores is probably no greater than the likelihood of communal infection by soldiers discharged from training camps. Conditions have changed so much since the period of the Civil War that there is little probability of any serious influence upon the state of public health incident to the release of the million and a half men who were remaining in cantonments and camps at the time of the signing of the armistice.

It is of paramount importance, however, to recognize the possibility of an increased dissemination of disease from these military and naval sources, altho it may be accepted as a fact that the activities of public health officials will be prompt and thoro in investigating and supervising all diseases occurring in the person or the family of a discharged soldier, sailor or marine. Health authorities should demand a special report upon all forms of disease occurring within

three months after discharge from any branch of national service. In this procedure they would undoubtedly have a full measure of support on the part of the medical profession as well as the appreciative cooperation of the general public in whose interests such regulations would be made. From the public health standpoint this is a regulation worthy of consideration and action.

Post-influenzal Examinations.—While the epidemic of influenza has apparently returned in many sections of the country, the seriousness of the infection appears to have moderated. In thoro accord with the history of epidemics, the infecting virus appears to have lost some measure of its virulence. In all probability there will be a continued incidence of the infection for many months and, possibly, the last of its appearance in epidemic form is not within hailing distance.

Thus far the total results of study and investigation in the fields of pathology and therapeutics have revealed very little that is new. There appears for the present a certain uniformity of opinion that the bacillus of influenza is not the primary etiologic organism and that the actual cause is not known. Apparently the pneumonias incident to the infection following closely upon the influenza may be due to one of the four types of pneumococcus, streptococcus, possibly hemolyticus, Friedlander's bacillus, or some other organisms or viruses thus far undetermined. The frequent reporting of these infective agencies is suggestive of some relationship to the complicating pneumonias, tho the exact relation is thus far conjectural.

In prophylaxis there is a certain weight

of information in favor of the use of the gauze mask as a reasonable preventive device, provided it is properly worn, frequently washed, and continuously utilized by those still free from evidences of the disease. There is a serious question, however, as to the efficacy of universal mask-wearing in communities as a prophylactic, because of the difficulty in establishing complete control over its use by the general population. It possesses merits which commend themselves despite the practical difficulties involved.

The use of vaccines still remains a moot point, with the general impression that while this treatment has proven of value in many cases, it still requires considerable more investigation before a definite conclusion can be reached. At the present time there is naturally much doubt in the adequacy of endeavors to prevent a disease due to an undiscovered organism by the injection of microorganisms not proven to possess direct etiologic relations.

Theoretically, isolation and quarantine command attention and consideration. It is doubtful, however, whether in the face of an epidemic attacking thirty to forty per cent. of the population such a procedure is practicable. This is emphasized in view of the difficulty of determining who are the carriers or, indeed, of securing sufficient control of groups of persons bent upon pleasure, worship, or occupation during the time that they are in the incubation period of the disease. In all probability, contact infection is the main means of distribution tho, possibly, mouth infection may play a small part. The control of these two items in the presence of an epidemic of large proportions appears to be beyond the possibilities of health organization as at present administered.

A consideration of the history of influenza epidemics indicates that the high rate of respiratory fatality and morbidity manifest during the epidemic is wont to continue for a brief period of years following the subsidence of the original epidemic. The increase in bronchitis and pneumonia is particularly marked for four or five years following an epidemic of this character. Victims of tuberculosis are more prone to exacerbations of their conditions, and probably no small share of the pneumonia death rate following influenza is due to pneumonias developed among those whose vitality has been impaired by tuberculous infection.

It is of paramount importance in the follow-up work after influenza to urge frequent re-examinations of those who have been unfortunate enough to contract influenza and more particularly those who have undergone a siege of complicating pneumonia. The decrease in the number of cases of influenza reported should not be regarded as an excuse for the relaxation of efforts toward the control of respiratory diseases which today present the greatest problem in public health. Omitting the continued oversight given the tuberculous patients, no set of conditions merits more thoro and continuous investigation, supervision and control than infections of the respiratory tract. Physical examination and re-examination are prerequisites of attacking this phase of the health problem. It is to be hoped that the present-day experience will not be without some benefits to those who have escaped with their lives. Every individual who has had influenza should undergo a careful physical re-examination within three months after recovery.

If it is possible to take advantage of the present state of mind toward respiratory

diseases so as to secure a state of public opinion favorable to the annual examination of all persons irrespective of their health, a tremendous step in advance will have been taken. The preventing of serious morbidity may be aided only by repeated examinations during a state of alleged good health. The results of the examination of large numbers of persons believing themselves fit physically have demonstrated the large variety of defects which are frequently present and which, unremedied, may lead to serious impairments of vitality.

Douglas McMurtrie, discussing "Social Responsibilities in the Rehabilitation of Disabled Soldiers and Sailors," (*Medical Record*, October 26, 1918) points out the necessity of establishing a new public conscience towards disability. Industry has had comparatively little use for the handicapped individuals. The fact that many thousand men will be potentially less fit to compete for a livelihood, as a result of national service, places a serious obligation upon the nation. Injuries, themselves, are far less serious to individuals than the attitude of the public towards those who are disabled. Judging by past performance there has been a large measure of injustice in the attitude of the world towards those who thru accident have become less capable. Discouragement, trials, and the struggles of cripples are a sad commentary upon the degree of understanding of the conditions confronting the disabled. The assumption of uselessness is unfounded in fact. Almsgiving is neither the antidote nor the stimulus essential for physical and psychical rehabilitation. Fortunately, the general public prejudice is being offset by a new campaign of public education, having as its end an intelligent conception of our duty towards those who have been disabled in public service. The re-establishment of self-respect and self-support becomes the keynote of the new regime that is being fostered under national auspices. Not lionization, but opportunity, not free food, but industrial training, not charitable relief, but opportunity in the industrial world, represent the paramount issues that must be met.

Those who are taken from fields of successful effort deserve to be returned, capable of realizing success once more. The word "cripple" deserves to be scrapped, save in its technical meaning. There must be no hint

Rehabilitating the Maimed.—With the dawn of peace coloring the horizon, the question as to what the new day is to bring looms large. The country has been altered so that the focus of all things has been the winning of the war. The focus need hardly be changed, because a war for human success and justice will continue. The character of the problems to engage the interests and enthusiasms of the public will be altered in form, tho the end is the old desire for "life, liberty and the pursuit of happiness."

Restoration to normal function is not always a rapid process. Compensatory hypertrophies have characterized the industrial sphere. The manpower of the nation has been diverted in various and unusual directions, and the reversion to normal function will be a slow and trying period of time. For normal men, readjustment will be made without difficulty. Those who have been handicapped by reason of disease or casualty represent a definite problem whose solution is academically simple, but practically will require continued thought and most careful supervision.

or suggestion of inferiority or gross incapability. The physical disability must not carry with it a connotation of helplessness.

The disabled, maimed and handicapped cannot rise to a position of self-support without the full backing of an interested and helpful public. Practically all the belligerent nations have appreciated the importance of saving the handicapped from the blighting effects of unenlightened public opinion. Campaigns of education have sought, and with marked success, to disseminate information concerning the modern principles and methods of dealing with the disabled.

The establishment of special hospitals by the Medical Department of the Army is being supplemented by the practical work of the Federal Board for Vocational Education. The government is prepared to assist those disabled by the war to become more efficient in their previous calling, or to train the disabled to take up a new vocation. The United States Government practically guarantees to every man disabled in the war, under circumstances entitling him to benefits of the War Risk Insurance Acts, the benefits of such of the following services as he may require: "Vocational advice and assistance in selecting a suitable occupation; help in returning to the old occupation again if advisable; support while in training for a new occupation or for greater proficiency in an old occupation; a course of preliminary employment; permanent employment in a desirable position; and follow-up work to protect him from mistakes and exploitations." (*Monograph No. 1, Vocational Rehabilitation Series No. 1.*)

This program is the starting point of a new phase of public education. It is a nat-

ural step in advance along the line of the conservation of human resources. It is to be regarded not merely in its vocational or commercial aspects, but as a distinct step along public health lines. The re-establishment of family life under normal conditions is most certainly a vital factor in health protection. Earning capacity represents a hygienic asset in direct ratio to its ability to secure rational living under conditions that build up health. The pernicious practices of the past which have resulted from indifference or ignorance must be discarded. Casual labor, dependence, lack of adequate food, shelter and clothing, dependence upon philanthropy, are evidences of wastefulness of human life and welfare. Self-respect, self-support and at least a modicum of happiness, are contributory to health.

Ability is to become the corrective of disability. Power is to strengthen weakness. Public support and encouragement is to offset almsgiving and discouragement. Optimism, based upon potential effectiveness, is to supplant the pessimism born of incapacity. Reeducation and rehabilitation are truly phases of public health work.

A Message to Disabled Soldiers.— Surgeon-General Gorgas, in his message to disabled soldiers, has voiced what must be the sentiment of the nation, and the inspiration of his words should carry on, not merely to the disabled soldier but to every disabled individual regardless of the origin of the handicap.

"More than chevrons, bars, or insignia, the marks of battle which you bear, sacred symbols of your service to a high cause, have given you a rank among your fellows. That rank makes you forever one of those to whom the nation shall always look for future sacrifices as noble as those you have

already made and for future achievements worthy of your past.

"No matter what has befallen you, you are still a soldier. Altho you have returned from the front you have to fight foes more worthy of your steel than the Germans—discouragement, loss of ambition, readiness to accept the easiest way, reluctance to play your part in the peace world. We know you will conquer these enemies.

"Your country needs you yet to fight the battles of peace.

"You are still one of the world's workers. In spite of your handicap you can produce with hand or with brain just as much as the next man. Your country needs soldiers in the great army of workers.

"You will not have to go it alone. The Government and the Red Cross will see you thru. The Government will restore to you the use of injured members, it will teach you a trade, it will give you an opportunity to earn your living as before—perhaps better than you did before. And all along the line the Red Cross will be with you and your family.

"We have pledged our faith in you. We are for you and with you always."

Intelligence and Education.—No one realizes better than the doctor, who recalls his college days vividly, how often memory was made to serve in place of real knowledge; how frequently burning of midnight oil for a few days before examinations and cramming his aching head with figures, facts and vague formulae carried him to triumph thru tests which he could never pass again only a week later. And in later years, reflecting on the defects of a system that places so great a premium on memory and so little on intelligence, how many a doctor has regretted this diversion of the trend of education from the real purposes for which it was designed, knowledge that remains with the years and intelligence fortified to meet the tests of life.

How many a doctor has seen the brightest pupils of his class sink into obscurity and failure in professional life, and the so-called dullards rise to distinction and service; an experience which only confirmed his suspicion that there was something rotten in the state of education. To such doctors the new system of entrance examinations to be introduced in Columbia College—a system that will test the intelligence, ingenuity and resourcefulness of the student rather than his memory—will come as refreshing news.

For a long time leading educators have been dissatisfied with both educational methods and test methods as they were conducted in the schools of the nation. Some years ago, a radical professor astounded both his pupils and his colleagues by permitting the students to take their textbooks with them into the examination room and to use them freely. The professor, in establishing this practice, did so on the ground that a test was successful only in the measure that it approximated the sort of test a student would meet in real life. The tests in real life were not of how well a man could remember what was recorded in certain books, but how well and intelligently he could apply the information thus recorded. To this information he would always have access. The doctor, except in rare circumstances, can refer to his textbooks at will in the study of a baffling case. It is a waste of effort to have to carry in one's mind an array of facts which one can always obtain with less effort, leaving the mind free for more useful tasks. The tests which the radical professor submitted were extremely successful. They were tests not of the student's memory, but of his ability. He was given a difficult problem, and was permitted to employ all the facts at his com-

mand in the solution of the problem. So successful was this step that it was presently imitated by other educators.

The system to be introduced at Columbia is another adyance in the right direction. It has been the experience of those in charge of the entrance examinations that many applicants have been able to gain admission merely by cramming up in advance, tho it was found later that they were utterly lacking in the intelligence that made them fit subjects for the higher education. The examinations in future will be along the line of the famous Binet tests, establishing the applicant's claims to intelligence and promise rather than his capacity for remembering. These tests will demonstrate the real quality of mind which the student presents, his alertness, his ingenuity, his capacity for intelligent use of knowledge. They will determine whether it is worth while spending four laborious years in trying to train him for an intellectual life, for which he may not be fitted. The test of his actual knowledge will merely be his record in the school from which he comes. And above all, these tests will indicate the special fitness of the applicant for a particular career—whether his mental disposition fits him the better for a future as an engineer, a teacher, a doctor, a lawyer, or one of the other professions. They will eliminate the haphazard choice of a career, the burdening of the brilliant pupil with the drag of an unintelligent one with whom the former must keep pace. It is a change that promises the most gratifying results.

chooses the moment of greatest danger to do the most absurd thing. When pursued by a hunter or an enemy and when it sees no possible exit or escape, it buries its head in the sand and assumes the delightfully philosophic attitude that ignorance is bliss. Unquestionably such an attitude is conducive of a most comfortable and comforting state of mind, but it would be rash to recommend it as a salutary state of body. One is reminded of the learned rabbi of old who was confronted with the problem of a growling dog and was reproved for his nervousness. "I know that barking dogs never bite," said the rabbi calmly, "but does the dog know it?" And the huntsman, with leveled gun, unaware of the beauties of the ostrich philosophy, pulls the trigger and the ostrich pays the price of his unworldliness.

The Board of Health of the City of New York, searching the zoological gardens for a model after which to pattern itself, has unfortunately selected the ostrich as a type most worthy of imitation. In view of the wide range of choice at these gardens, the selection is inexplicable. Many men and institutions have gone there for inspiration and guidance, and the worst that has befallen them has been the acceptance of the mortkey as the most fitting model. It remained for the Board of Health to demonstrate its originality by honoring the long neglected ostrich. And, having selected this worthy bird as its pattern and guide, it has succeeded in emulating the original with such fidelity as to arouse wonder and awe in all who have followed its course. Thus, one morning recently there were reported over five hundred cases of influenza and one hundred odd deaths from pneumonia. This was by no means an exceptional day, the figures of late adhering closely to this

Influenza and the Ostrich.—The ostrich is an extraordinary bird. It is a most naive creature. By a singular trait of character, it

total daily. In the minds of most unprejudiced men this would constitute a serious situation, and the one word that would characterize the situation adequately would be "epidemic." But the Board, singularly unmindful of the facts and their most obvious interpretation, has dropped that one word from its vocabulary. Imitating the maneuver of its favorite bird, it buries its head in the sand and assumes the ingenuous philosophic attitude that ignorance is bliss. "Danger? Nonsense; I don't see a thing!" And the huntsman goes on with his deadly rifle practice.

Now, such strategy would be admirable and commendable only on one condition: if the Board means to encourage in the public a state of ignorance which it does not share itself, and if, aware of a danger which it prefers to keep to itself, it pursues a severe policy of eradication. But unfortunately it would appear that the Board encourages ignorance not only in the public but actually in itself, and goes blithely along unaware of the many danger signs along the path it has taken. It buries its head in the sand and breathes a sigh of relief. One can only regret that the Board, in its wanderings in the zoological gardens, never discovered the lion. Certainly that king of the jungle would serve as a better model. It has, in moments of greatest danger, a tendency quite the opposite of the more spiritual ostrich—it turns and fights, and it fights well. Hardly a philosophic or lofty attitude, one must admit, but one often conducive to safety. It is perhaps rash to try to predict what the spirit of the lion, inspiring the conduct of the Board, might effect, but one may divine that its course would be something after this manner: it would divide the city into about five hun-

dred districts. At the head of each of these districts it would place a competent inspector, fully instructed and trained in his duties. This inspector, ever vigilant for signs of danger, would report all cases of influenza, and promptly bring into play all the machinery of the Board in an effort to isolate this source of danger to the community, protecting the population and helping the individual at the same time. Rather blunt and uncomplicated as plans go, but the mind of the lion is blunt and uncomplicated. Perhaps a more careful search would reveal a model even more satisfactory than the lion; but, in any case, one must conclude that the ostrich has proved thus far a distinct failure. A rather regrettable conclusion, for the ostrich is a really nice bird—when he helps to beautify a lady's hat.

Prohibition.—Among the indirect results of the World War has been the "conquest" of John Barleycorn. After a due and prolonged struggle, the legislatures of 40 States have ratified the Federal Amendment and practically only one year more of distilled and spirituous liquors remains for the people of the United States. In effect, prohibition begins July 1st, unless, perchance, President Wilson should declare demobilization to have been accomplished before that period, as a result of which, a brief oasis would spring forth.

In view of the accomplished fact, discussion as to the advisability of prohibition sinks into a subsidiary position. It is proper to dwell upon the achievement of what ought to give promise of being a decided social advance.

The results of the prohibition movement cannot be judged for a long period of time. At least a generation that has developed

and grown up in a non-alcoholic environment is necessary before any judgment can be drawn or scientific opinion held with reference to the effects of prohibition upon the general health and welfare of the race. Will poverty be decreased; will crime be lessened; will disease be diminished? Theoretically speaking, one should hope for evidences in positive affirmation of these desired ends. It will take many years to secure the reflection of the improved social condition, hoped for, in terms of morbidity and mortality rates. Whether arteriosclerosis, nephritis, epilepsy, insanity, malnutrition are to be less common as a result of soft drinks remains to be demonstrated. Doubtless there will be manifest some effects indirectly related to alcoholism upon conditions such as homicide, venereal diseases, lowered standards of living, and consequent inferior familial development, and possibly, a favorable decrease in the incidence of accidents in industry. From *a priori* conjectures one would expect to find marked improvement in social welfare, with consequent benefits to the public health. Whether this goal will be attained or not is a matter for future determination.

It is not improbable that complete prohibition will not exist for many years, as long as the appetite of men for alcohol remains unassuaged. A new generation growing up, free from the temptations, and lacking the opportunity for the satisfaction of a craving such as their forebearers possessed or, indeed, lacking such a craving, will serve as the best example of the real effects upon public health and welfare.

So much harm has been attributed to the consumption of alcoholic beverages that it will be a matter of unusual interest to compare the statistical material of a non-drink-

ing generation with that relating to past generations for whom alcoholic drinks have not been denied. So many factors enter into the causation of disease, it is difficult to judge of their relative importance. By the elimination of one factor hitherto regarded as quite dominating, it will become possible to appreciate in a comparative study the real part it may have played in the production of misery, sickness, accidents and general unhappiness in the world.

For the time being, the "drys" have won the day. Whether their efforts in bringing about the passage of the national amendment will prove to be the advance desired is merely a problem whose actual determination will depend upon the character of the laws promulgated to insure the enforcement of the new enactment. It will also determine whether John Barleycorn is really dead, or has reverted to a state of suspended animation. The world should be better, because of the non-usage of alcohol. Present-day opinion strongly supports the view that a social improvement has been made. The actual basis for this judgment, its soundness or incorrectness, can only be determined after the lapse of years during which careful analyses of social and health factors will be required.

It's What You Think!

If you think you are outclassed, you are;
You've got to think height to rise,
You've got to be sure of yourself before
You can ever win a prize.
Life's battle don't always go
To the stronger or faster man,
But soon or late the man who wins
Is the fellow who thinks he can.

—*Clinical Medicine.*



The Late Theodore Roosevelt.—An attempt to classify men on broad lines of character leads to a recognition of two types: The Hamlet type, given to much reflection and little action; and the Macbeth type, given to much action and little reflection. It was the distinction of the late Colonel Roosevelt that he achieved a union of the two types in a single personality which is rare in the extreme. He was at once a doer and a thinker, and each element in him was developed to an extraordinary degree. When it was a question of action there were few men that could anticipate him, fewer that could bring the same amount of energy and vigor to bear upon a task once undertaken. To his intellectual tasks he brought a quality of mind and a lucidity of reflective power which was admirable. Of course, the mistake of the Hamlet type is that it often does too little, and the mistake of the Macbeth type is that it often does too much. The Hamlet in Roosevelt was not so pronounced as to lead him into frequent errors of thought, but the Macbeth in him was dominant enough to lead him occasionally into the mistakes of that type. "The man who never makes a mistake," said Stephen Girard, "never does anything." Roosevelt did a great deal, and he made mistakes. His meeting with the Kaiser and his enthusiasm over that pathetic paranoiac was a mistake. His impulsive attempt to tell the rulers of England how best to manage their colonial affairs was a mistake which brought down the resentment of the whole British press upon his head. His bolting of the Republican party in 1912 is considered a mistake by many, a mistake which was chiefly responsible for the surrender of power to the rival party. All this is true, but on the credit side of his sheet there is a balance of good work well done which cannot be denied by even his enemies.

And of enemies Roosevelt had more than is the average man's allotment. You

can tell a man by his friends, but you can tell a man equally well by his enemies; and, on the side of his foes, political and intellectual, were ranged some of the best minds in the country. On the other hand he numbered among his stanchest admirers and supporters individuals of the highest rank in every quarter of the republic. He was a born leader of men, and, as often happens in the case of a man of such immense personal magnetism, the enthusiasm he aroused in some was as warm as the opprobrium in others was bitter. Few men were ever so frequent and so heated a subject of controversy as Roosevelt, and that perhaps is the highest testimonial to the vigor and fulness of his career. No one was ever indifferent to him. They either loved him or hated him, and that was no doubt precisely as he wanted it to be. He himself was never guilty of the offense of indifference. He either loved people intensely or he hated them intensely, and he rarely disguised his feelings out of consideration of tactfulness. In his eyes the one unpardonable sin, in action or in thought, was timidity.

It is perhaps too early to presume to give a just estimate of the man. Time alone can give the perspective needed for such a judgment. But it would hardly be rash to anticipate the judgment of the future and predict that he will find a conspicuous place in history, a place that has been occupied by but few men in the development of our country. In time the partisan spirit that embittered many men against him will disappear, and the permanent qualities of heart and mind which the man possessed in so rich a measure will alone be remembered. That these have even now come to outweigh the qualities which have so often been the subject of dispute may be judged by the wholehearted grief of the entire nation at his death. In Roosevelt the country has lost a great stimulator of thought, its greatest disciple of action.



ADDRESS ON MEDICINE AND SURGERY.¹

BY

ROBERT T. MORRIS, M. D.,
New York City.

Mr. President and Members of the Eastern Medical Society:

I have been asked to review the subject of Medicine and Surgery, particularly with reference to modern methods. In studying anatomy we get at our subject a little more clearly and interestingly if we begin with comparative anatomy; consequently before taking up the subject of the Medicine of Today let us dwell for a moment on the medicine of the past. You know what the ancient Egyptians did in the way of surgery and medicine. You know that even in South America some excellent surgical work was done among the ancient Peruvians. There is a mystery about their trephining. No one knows why some of it was done, because skulls that were apparently perfectly normal have been found that were trephined. In hunting with the Indians I have learned that when they kill a bear they often make an opening in the skull to let out the bad spirit, tho one would imagine that it had already been let out by the bullet; but this may be a tradition that dates back for centuries, and it is possible that this idea may account for some of the

trephining done in ancient times. That, however, is pure speculation. However, away back in the days of Hammurabi some surgery was done, for the ancient records show that Hammurabi supports my claim that a short incision is desirable in surgery. He also advises surgeons to have their instruments clean. That is very good advice, dating back 2000 years B. C., and ignored by many after him, for in the days of my old preceptor, not so very many years ago, I remember that he washed his hands after an operation instead of before. We have forgotten a good deal in the long interval since Hammurabi, for knowledge comes and goes; we adopt the part adapted to our needs and then it goes out of our minds because of newer and perhaps more rational methods. Democritus who was born 460 B. C. believed that disease was due to minute living particles. Democritus is said to have blinded himself in order to have time to think and develop his philosophy and not be disturbed by external impressions that were confusing. At the present time, while we are again interested in the subject of disease being caused by small organisms, I do not know of any doctors who have blinded themselves in order to have time to stop and think. It may be that some part of ancient history, in point of application, would be desirable today when we are all in such a hurry to do everything at once and to do all the work

¹ Before the Eastern Medical Society, December 13, 1918.

in sight. That becomes a very serious matter for some of us. I find many men hurrying eagerly and earnestly, not having time to enjoy life and I sympathize with them for I find myself in the same position. Not long ago while walking around on the farm I found myself looking at a guinea hen's nest. She had laid so many eggs that she could not cover and hatch them all, so she simply sat on all that she could and let the rest go. I took a lesson from that guinea hen, and in the crowding demands of medicine and surgery let us all follow the same methods—sit on our nest and do what we can comfortably and let the rest go.

We have passed the stage in medicine when men were killed for advancing new theories in science. Why were they killed? In those days superstition often took the place of knowledge as it does today; but in those days superstition was more closely connected with theology and with the anthropocentric point of view, consequently anyone who made startling advances was disturbing some tenet in theology and endangering the souls of the people. It was on highly moral grounds that the scientists who made advances were tortured or put to death.

Next, medicine arrived at the stage where men were simply persecuted for making new advances. Why were they persecuted? The human mind has wonderful resources for resisting the introduction of knowledge into itself. Men arrive at comfortable conclusions, they agree upon comfortable conclusions and then proceed about their daily sins and their daily occupations with ease; but when some new theory is advanced which obliges men to rise and lift themselves above the conventions, they fear a certain discomfort and for that reason

they exhibit a certain amount of intolerance at what obliges them to leave their comfortable seats of convention upon which men were agreed. By the time when men have finally agreed upon any subject, it is often quite out of date.

Now-a-days a change is taking place, men are really so eager for new knowledge that they do not resent the introduction of a fresh idea, but in their speed are more inclined to grasp it by one edge and to run away with it before gathering in the loose ends, and consequently we have the spectacle of men advancing rapidly with quite incomplete knowledge of a subject; advancing rapidly, I would say, in gaining the attention of the public and the profession rather than in classifying data well.

I have just read the introduction in the very valuable book of Dr. Charles Geiger on Bone Surgery—osteoplastic work. Dr. Geiger says that the wonderful advances that have been made in bone surgery place it in advance of other branches of surgery today. I suppose that almost every man who is engaged in special work of other kinds would question this point of view; and yet, don't you see there is something really very wholesome in it after all; something stimulating, something encouraging; when a man believes that his subject is the most important one in medicine today, he is obliged to do such very hard work in order to justify his belief that he accomplishes a great deal more than if he had any doubts about his position.

The matter of focal infections is one of the very new subjects of the day which men are taking up with a great deal of interest but are going ahead perhaps with incomplete knowledge and not comprehending the range and scope of the entire subject; consequently this subject is falling into

disrepute in certain fields because of the over-enthusiasm of some of the advocates of focal infection theory in relation to distant demonstration—endocarditis, rheumatism, gastric ulcer, cholecystitis, various forms of neuritis, etc. The philosopher, taking all the evidence judicially, will eventually give the medical profession the basic facts and what is valuable in the subject. Right now one might utter a warning to the general medical profession against taking too active an interest in this subject. Hardly a day passes that I do not see a group of strong men like a pack of wolves tearing away at the tonsils, one on one side of the question and another on the other side, and the poor tonsil is torn to pieces. We do not know where we stand on the subject. That is not right. The patient has to bear the consequences of the differences of opinion. It seems to me that we ought to have some sort of court to pass judgment on the findings of the men who are working so actively in new work. Facts should be classifiable so that you and I may know what to say when the tonsils really do appear to be the cause of infection—as with gastric ulcers and endocarditis, for example. When we make cultures and find *streptococcus viridans* or bacteria that are known to be dangerous under certain circumstances; it does not necessarily follow that the toxins from these bacteria are causing the distant demonstration in a given case. It does not even follow that the antibodies called out by the presence of these toxins for protection are themselves producing an autolysis which gives us the symptoms of the disease. This is certainly true in some of the cases—in a certain percentage of the cases. It is our duty then to say that a focal infection of the tonsil may perhaps cause endocarditis, may cause rheu-

matism of the joints, may perhaps cause gastric ulcer by way of selective affinity, which Rosenow has described to us. It is our duty to find out in what proportion of cases the toxins are producing such distant effects and that we must do, not by taking out all infected tonsils, not by having all infected teeth pulled out to satisfy our curiosity in the case but by so far as possible eliminating one by one all other factors and by exclusion getting down to the fair presumption that any one focus of infection is producing any one given demonstration. At the present time the matter of infected tooth roots is not receiving attention enough, for the reason that when Rosenow first directed attention to the subject and Billings made his excellent clinical observations to corroborate these findings, other less careful observers jumped to conclusions and played havoc with teeth and with tonsils which should not have come out. The focus of infection bringing teeth and tonsils under suspicion is often in the colon, when the matter of excluding the colon definitely has not been taken into consideration.

In our newer work in this field, the peripheral irritations have been taken up with enthusiasm and the subject carried beyond its natural limits by those who did not exercise judicial faculties in weighing or producing evidence. We know that eye strain will produce distant effects—peritoneal adhesions, loose kidney. These are all peripheral disturbers of autonomic and sympathetic nerves. They register impulses upon ganglia and upon brain and cord centers with demonstration at a distance in many cases, but we are to very carefully exclude the cases in which such peripheral objective signs are present but are not producing the subjective symptoms of which the patient complains. A great deal of work has been

done wrongly, hurriedly, thus bringing modern medicine, the medicine of today, into disrepute because men sometimes place too much stress on the value of the objective signs relating to organs or structures which may or may not produce peripheral irritation in a given case. The results may be secondary or in the third rôle. Peripheral irritation may produce effects in such a way that the sympathetic control of the digestive function is disturbed, general metabolic change is disturbed, and then follows a series of toxic manifestations which stand really in the third rôle—the peripheral irritation having merely allowed incomplete digestion to occur, causing disturbance of the alimentary tract, followed by a series of affections, no one effect being a diagnostic entity, everything being in close co-ordination, every demonstration being in one category, to be separated analytically by the really good physician.

With our many specialists today a patient will have great difficulty in getting into the hands of the right authority. If I send a patient to a physician who is a heart specialist, with a question of heart trouble and that patient comes back without heart trouble it is because the doctor was not in. None of us is ideal; we all have something wrong, and almost any specialist will find something which will occupy his entire attention if any one of us happens to drop into his office.

Consequently, in our modern medicine, we need some one guiding hand; we need the old time physician who was guide, counselor and friend, who would weigh the evidence of all the specialists and reach his own conclusions and give the patient the benefit of his wise decision. The medicine of today, the most of our modern medicine, is falling into disrepute in the minds of the

laity, for the laity is inclined to go to specialists without first getting the advice of the good old family physician—but such a man is very hard to find today, tho I believe he is the man of the future when we have completed one of the customary spiral cycles marking upward social movement.

The subject of endocrine disturbance is one of the very newest today. Endocrine disturbance sounds very nice and knowing. We sometimes feel that in this subject we shall find a panacea for all ills; yet all bodily activities are carried on under endocrine stimulation. When we have perverted function of any of the endocrine glands, a doctor is prone to come to the conclusion that he may decapitate the demon of all the patient's ills by simply caring for the endocrine gland that is in evidence. The thyroid gland has received an undue portion of attention for the reason that it is in sight. Men forget its connection with the adrenals, the spleen and various other organs of the endocrine chain, because the thyroid is in sight. It is something like a skull bump.

The older phrenologists ascribed all human faculties to certain bumps on that part of the skull which they could feel; only those that could be thus determined having any significance, human faculties, the phrenologists forgetting that on the base of the brain there are just as many bumps unaccounted for. I do not know what they would say about these, unless to say that they represent the dual personality.

The study of endocrine disturbance perhaps takes us into the really largest new field of today. Under the conditions of civilization men are reaching cultural limitations just as other animals and plants reach cultural limitations under conditions

of a high degree of cultivation; and when cultural limitations are reached we then have arrested development in greater or less degree; breeding comes to a pause, various perversions occur and down goes that variety of man which was represented in the history of nations. We now know how the ancient civilizations really passed away—how Rome fell, Egypt, Peru. We know how France is going today. We know that in all civilizations the time comes when cultural limitations are approached as they are with animals and plants. The Newfoundland dog, the Morgan horse, the Wilson strawberry are passing away. They reached cultural limitations and are passing out. The same thing is occurring in our civilization here. Cultural limitations are being approached, arrested development is appearing in larger and larger numbers of people and with this arrested development apparent in physical defects we find that physiologic responses, functional in character, are so closely allied to structure that when anything is wrong with structure, function responds; consequently, in our civilization today we have a larger and larger number of people with arrested development of certain organs and with a higher degree of disturbance of function of the endocrine glands. We may, therefore, expect to make more and more mistakes along with the recording of new truths. When taking up the therapy of the internal secretions, while making advances, collecting more facts, we come again to the point where a well balanced judicial mind is needed in medicine today in the matter of these endocrine functions and the matter of endocrine therapy.

What has the war been doing for our new surgery? Apparently no great new principles have been brought out in war

surgery. The field of battle is not the place for developing theories. Theories come out of philosophy, they come out of metaphysics applied to data carefully collected by the philosopher, so that perhaps we should not look for anything revolutionary in the way of new work to come out of this war. But there has been a splendid opportunity for the application of principles and out of this war has come a knowledge and perfection of detail in technic and improvement in methods of procedure which will be of lasting benefit to the entire world. We did not know really or appreciate the fact that the Dakin-Carrel method was enormously valuable, until there was a violent controversy upon both sides and the men who believed in the Dakin-Carrel method had to prove their position by recording facts of such consequence that no one could dispute the evidence. A large amount of constructive work has been done, giving our orthopedists, with osteoplastic work, an enormous opportunity. I should not take up the subject of war surgery this evening, for one thing leads on to another and a speaker might devote an hour, a week, or a month to the subject, preferably a month.

Who is to stand back of the medical profession when there is need for so much laboratory work, so much expensive special work in making up a brief relating to any one case? The public must do that. How is the public to do it? I hope that what I am about to say now will not lead me to be shot—hold your revolver until I am thru—but the cold fact is that a paternal government like that of Germany gave us the most remarkable efficiency in advancing medicine that has been demonstrated in the history of the world. The method that German scientists applied to medicine led to magnifi-

cent advances in medicine and in surgery, altho the German mind is not intrinsically superior to the English, French or Italian mind. Progress was made by Germany because of the paternal, autocratic form of government which had value until it was taken in charge by an imperial neurotic who could sign away his people's prosperity. Can we have anything to take the place of paternal government? There is the need. There is the need over the entire world for the sort of backing, the support, which paternal Germany gave to its scientific institutions. In this country we are depending very largely upon private endowment, private funds; but no matter how generously they are given, the public cannot understand the needs of the medical profession in science. The generous gift of the late Captain De Lamar would have to be repeated many times over, for we need many times ten millions of dollars for enabling our doctors to do for the public what we wish to do for the public betterment impersonally, not for ourselves personally.

How about the medical colleges of today? I find that in many of our medical colleges there is a certain loss of morale, a certain lack of character, which belongs to our hurried methods of today. Students are taught to pass examinations quickly and well, without regard for the moral character involved in the question of their duty toward the public, which is to follow, and consequently there is a great deal of complaint about cheating in examinations and other evidence of grasping the main chance, instead of students developing the point of view toward the profession and the public which should be given to every young man in our medical colleges. It is not the passing of examinations which is important, but the large idea, the point of

view given by the teachers to the entire subject of medicine idealistically, which must be developed in our medical colleges unless there is to be a still greater loss of morale and still greater slump toward commercial thought. This matter appeals to me very deeply. In looking over the different medical colleges I find among the teachers men of the highest degree of scientific attainment, men who are competent as teachers in their scientific studies, but they do not set standards or give the point of view, the outlook on life which leads the student to become the true, the great physician, who is to minister to the wants of the people; and it is the human side of the subject rather than the material side which in the end gives character and the stamp of high caste.

Recently a father said to me, "I had hoped to send my son to my medical Alma Mater, but on looking over the catalog it seemed to have a dearth of great teachers or leaders of thought and to be suggestive of medical politics."

As a corrective it seems to me that any medical college teaching faculty belongs under close supervision of the president of a university and that medical colleges so far as possible should be a part of the university. The reason for this is because the university represents our entire social system in miniature and the president of the university is supposed to have in mind the making of the best citizens out of each one of his students. His approval or disapproval of teachers would have reference to this point and he would exclude from the teaching staff some of the men who are experienced at placing themselves, at the expense of others belonging to a certain scholarly group respected by the public for intrinsic worth but so busily engaged in

their work that they are not experienced in maintaining position.

All young men are idealists. All young men look to their teachers for the setting of such high examples that students may go forth into the world equipped as physicians who will do their best toward the public and toward each other. Unless this matter is taken into serious consideration in all of the medical colleges today in this country we shall not maintain our status as we should in the estimation of the public, which has a way of arriving at right conclusions.

In closing, I would say this: All present day physicians—all of the younger men and the older men—see before them such an enormous amount of work which should be done if they are to stand abreast of the times that the tendency is for them to take their work too seriously. They are very apt to lose the finer side of human nature which goes with broad interest in many things. No one physician here can comprehend the entire subject of medicine; no one can do the very best that can be done for all of his patients. It is well for a doctor to have human interests in many things outside of his profession—art, literature, music and the beautiful things in life—because we are here only once; we are not here for a long time, and if we do not lead a delightful life here I do not know when the next chance will come. I have a clergyman friend who tells me not to worry about this, but those of us who are practical men I believe should make an effort, while becoming high caste physicians, to try to lead an ideal life; and every doctor should stop and ask himself from time to time: Am I leading an ideal life, the sort of life which I wish my son to lead?

616 Madison Avenue.

MEDICAL VERSUS MEDDLESOME GYNECOLOGY.¹

BY

ARNOLD STURMDORF, M. D., F. A. C. S., etc.

New York.

Medical gynecology, or more specifically, *medicinal* gynecology, is a relic of the days when "Obstetrics and the Diseases of Women and Children" constituted a single department in the medical curriculum of our colleges.

The operative furor, initiated by the Listerian epoch, with its multifarious sins of *commission*, was naturally superseded by a reactionary conservatism, which, tending to the opposite extreme, rehabilitated and perpetuated certain therapeutic measures in gynecology, embodying sins of *omission*, that cannot be defended on any established physiologic, pathologic or clinical basis.

There is an undeniable but very limited field for legitimate medical gynecology beyond which, any drug treatment, whether local or systemic, constitutes meddlesome tinkering.

Every rational therapeutic attempt must be based, as far as possible, upon a clear conception of its aim and scope; empiricism has lost its place in the treatment of gynecopathic manifestations.

As an example, let us choose the most frequent and familiar symptom of gynecic disorders, namely, leucorrhea, and analyze the utility of routine treatment by medicated douches, tampons, caustics, dilatation, curettement, etc., in fulfilling established pathologic indications.

The acute irritative phases of this manifestation may and should be successfully

¹ Read before the New York Physicians' Association, Oct. 27, 1918.

palliated by topical medication, but no method of topical medication can permanently cure a chronic leucorrhea because every *chronic leucorrhea* presents the outward expression of *chronic endocervicitis* resulting from an infection of the deeply imbedded racemose muciparous tufts in the endocervical mucosa.

Chronic endocervicitis is the most prevalent and its manifestations comprise the most familiar symptom-complex among gynecologic disorders. It constitutes a concrete clinical entity of pathogenic potentialities which may menace the integrity of the entire gynecic system; nevertheless, it is accorded no special consideration as such in the current text-books, where its description is scattered among various chapters as an incidental feature, under captions such as "cervical catarrh," "simple follicular or papillary erosion," "eversion," "hypertrophy," etc., all of which depict only different phases of the same pathologic process, the course and nature of which are obscured by perpetuated misconceptions that dominate a most ineffectual therapy.

In structure and in function a sharp line of demarcation differentiates the cervical mucosa from the corporeal endometrium.

Physiologically, the cervical canal presents nothing more than a passive communicating channel between the vagina and the uterine cavity proper. The cervical mucosa, composed of deeply penetrating racemose glands, simply secretes mucus; it does not participate in the cyclic metamorphoses of the corporeal endometrium essential to menstruation and deciduation; but more significant than this structural and functional contrast is the striking disparity in pathologic manifestations displayed below and above the internal os.

The cervical mucosa evinces a marked

susceptibility to infection, while the corporeal endometrium, contrary to orthodox conception, is practically immune; in short, the cervical mucosa might be aptly termed the uterine tonsil.

Omitting the detail of laboratory evidences, it will serve all practical purposes to state that at present most pathologists interpret the histopathic features of "chronic endometritis" as normal endometrium, in the transudative phase of its menstrual cycle, and while the existence or non-existence of chronic corporeal endometritis is still a matter of academic controversy, clinically at least, the condition may be safely discarded.

Nevertheless, the cardinal symptoms of chronic endocervicitis, namely, the abnormalities in menstruation and deciduation, point so directly to involvement of the corporeal endometrium that their occurrence in the absence of endometritis demands elucidation.

To correlate the pathology and symptomatology of chronic endocervicitis, we must revise some current conceptions of the myometrial structure and its dynamics.

The specific functions of the uterus in menstruation and gestation demand a wide range in the control of its blood supply and, like the heart, the uterus automatically responds to its fluctuating circulatory necessities by rhythmic contractions and dilatations, not only during pregnancy but, throughout its functional existence.

The myometrium is composed of smooth muscle fibers which, like all non-striated muscle, exhibits the intrinsic phenomenon of rhythmic contraction, independent of any neurogenic stimuli. Not only are these contractions necessary in maintaining the nutritional and functional integrity of the uterus as a whole, but they also serve the

equally essential purpose of drainage; the cervical secretions must find free egress from the normal and more especially from the diseased conditions of its mucosa.

Under normal conditions, such drainage is effected, not merely by a passive outflow thru a patent os but, by the active rhythmic expression resulting from uterine contraction.

To comprehend this mechanism, it is necessary to dispel the anatomic myth of a cervical sphincter; such a sphincter would imply the existence of a concentrically contracting muscular ring; the structural design of the cervical musculature precludes any concentric closure of its outlet which dilates with every uterine contraction, because its fibers, directly continuous with those of the corpus uteri, do not at any point completely encircle the cervix, but are disposed in a serried succession of oblique circle segments which, by contracting spirally upward, necessarily shorten every diameter of the uterus, and by their uncoiling in the cervix widen the os like an iris diaphragm in a microscope.

In the cervix, as elsewhere, every infection incites the greatest reaction in its lymphatic system.

The cervical lymphatics may be traced from their lacunar origin in the mucosa, thru minute funnel shaped ostia, directly to the muscular coat, where they expand into an extensive capillary net which, spreading along the perimysium, enmeshes every fascicle and bundle of the uterine musculature to the peritoneal surface, whence they drain into their collecting channels at the base and top of the broad ligament.

Thus the normal course of the lymphatics conveys an infection from the cervical mucosa, not to the corporeal endometrium

but, along the intramuscular planes of the uterus as an ascending lymphangitis, which impairs uterine contractions by infiltrating the muscle sheaths; then progressing to the periadnexal ramifications, it inhibits tubal peristalsis and agglutinates the fimbrial ostia by the production of velamentous bands; finally reaching the ovaries, it infiltrates their tunica albuginea, impeding the normal rupture of graafian follicles.

It is this ascending intramuscular lymphangitis and periadnexitis, with its resultant impairment of uterine, tubal and ovarian functions, not an endometritis, that links the pathology and symptomatology of chronic endocervicitis.

The dominating pathologic factor that determines the morbidity of a cervical laceration is not the extent of the tear but the incidence of its infection. Such an infection does not remain limited to the lacerated area, but sooner or later involves the entire endocervical mucosa from the external to the internal os.

In the treatment of chronic endocervicitis, the failure of prevailing therapeutic methods offers the most convincing evidence of inadequate fundamental concepts.

Chronic endocervicitis is primarily and essentially an infection of the deeply situated terminal tufts of the endocervical muciparous glands. These glandular sacculi harbor the infecting organisms for years or a lifetime. Their distention from duct occlusion produces the familiar Nabothian cysts, which may honeycomb the cervical structures or, becoming purulent, riddle it with miliary abscesses.

It is an axiomatic surgical principle, in the control of all infectious processes, to direct our therapeutic aim at the primary focus of infection. In general and specialistic practice, the escharotic, the dilator and

the curette still hold sway as established routine measures, especially for the chronic endocervicitis in the nullipara. Mild escharotics and discriminate dilatation, by promoting drainage, may prove of some benefit in very superficial infections, but curettage cannot be too emphatically condemned in any case.

The curette does not and cannot reach the deeply situated infected racemose tufts of the muciparous glands in the cervical tissues, and it should not injure the utricular tubules of the corporeal endometrium, which is rarely, if ever, involved in the disease, and whose specific functions in menstruation and gestation have been permanently vitiated by the lacerations and inoculations incidental to this time-honored traumatism.

The only positive evidence of chronic corporeal endometritis that I have ever seen, came from uteri that had been cauterized and scraped from one to several times.

To cure endocervicitis, we must remove the entire infected endocervical mucosa. While endocervicitis persists, its symptoms must persist.

The operation of trachelorrhaphy was originally based on the conception that the local and general manifestations of torn cervices resulted solely from gaping flaps, and that a cure of the condition demanded nothing more than a plastic closure of the gap.

The operation reproduces the original area of laceration and unites its edges by suture. It is obvious that the curative scope of this procedure is thus limited to the cases in which the infection has not extended beyond the lines of the original tear—a rare condition, for we know today that the functional disturbances following

cervical lesions which demand surgical intervention signalize the infectious invasion of the entire breadth and depth of the cervical mucosa, and that the conservation of the invaded areas, within the cervical canal beyond the lacerated edges, is productive of surgical failures.

On the same lines, a partial or low amputation of the cervix eliminates only a part of the diseased cervical mucosa, while a complete or high ablation of the entire cervix for chronic endocervicitis is an unwarranted mutilation of its muscular mechanism.

When a cervix splits during labor, the rent runs practically in the direction of its muscle fibers. When the cervix is amputated, its muscle fibers are severed transversely. The spontaneous tear, unless infected, exercises but little influence on the muscular mechanism, while the transverse ablation destroys it completely.

To summarize briefly, the cure of a chronic endocervicitis productive of local and general manifestations, whether in the nulliparous or multiparous cervix, demands a complete enucleation of the entire endocervical mucosa, the preservation of its muscular structure and the accurate relining of its denuded canal.

In a previous article on "Tracheloplastic Methods and Results," I have submitted an operative procedure which fulfills the pathologic indications and technical demands as enumerated. Four years of added experience, in my own service and that of others, have tended only to justify its claims and substantiate the validity of its fundamental principles.

Tuberculous Adenopathies.—Radiotherapy properly applied invariably exerts a most favorable effect in tuberculous adenopathies in the various stages of the disease.
—*Med. Times.*

RAPID RECOVERY IN A CASE OF ACUTE ANTERIOR POLIOMYELITIS (LANDRY'S TYPE) WITH SOME REMARKS ABOUT NOMENCLATURE.

BY

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It is impossible to make, during the acute stage of infantile spinal palsy, save as a guess, a prognosis as to life or as to the extent and severity of the palsy which will remain thruout life. High fever does not increase, nor slight fever decrease the chance of severe and lasting palsy, and even the severity of the other acute general symptoms is of little value in forming a judgment as to what the result will be. More than a few children go to bed only a little sick, with slight headache, backache and muscle ache, or indeed no pain, and a little fever, and next day are found to have a total palsy of both legs or more rarely of legs and arms, and often are left with one extremity atrophied and more or less palsied for life, while other children, seemingly more seriously ill, have but little palsy. In other cases the palsy comes on only after days of severe illness with quite high fever. A high cell count in the spinal fluid is of prognostic import, increasing greatly the seriousness of the outlook. Diagnosis, and consequently prognosis, is made more difficult because the disease may run its course without palsy, indeed, without any cerebro-spinal symptoms. During an epidemic, spinal puncture should always be made and the fluid be microscopically examined in the case of every child acutely ill. Thruout the illness the extremities should be examined repeatedly to discover if palsy be present.

Too often, physicians in treating sick children are so absorbed by thinking about the fever, the bowel conditions and the like, that they do not notice a paraplegia or even the entire loss of the use of the arms. Also the parents should be warned at the first visit what may occur. It is better needlessly, as it may turn out, to worry the parents than to have them suddenly discover that a child whom they did not think seriously ill is palsied.

Our conception of infantile palsy has widened greatly. Only recently has Landry's paralysis been included in the conception of the disease, and some authorities still claim it to be a distinct and separate disease entity. Since, however, in the 1916 epidemic cases occurred here and there presenting the clinical picture of Landry's paralysis, namely, a purely motor palsy beginning at the feet and ascending, without anesthesia, with only slight pain, with absent knee jerks, without muscular atrophy and with death following involvement of the respiratory centers, it is safe to conclude that Landry's paralysis may be identical in causation with anterior poliomyelitis, even if other poisons may also act to produce a similar picture. In other words, Landry's palsy may have one or several causes, but one is surely the same as that causing acute anterior poliomyelitis. What was the causative factor in Landry's own case we shall never know. We only know that there was no gross disease of the spinal cord, no myelitis. Whether there were cellular changes in the spinal cord such as can now be seen, because methods of examination have been improved since Landry's day, or whether there was a peripheral multiple neuritis, it is impossible to tell.

I give my patient's history briefly. A male mulatto fairly intelligent, 27 years old, of good constitution, not alcoholic and free

from active syphilitic taint at the present time, as is confirmed by a negative Wassermann test of both blood and spinal fluid, tho he gives a history of chancre six months ago. His family history is negligible except that both parents had white blood which is of some interest because anterior poliomyelitis seems to be infrequent in the negro.

After having had headache, cough, hot and cold flashes, without any definite chill, and a feeling of *malaise* for about two weeks (he had no medical attention and does not know if he had fever, tho his description indicates he had a little rise in temperature) he was seized on 1-15-'18 with fever and quite severe pain in the right knee joint which sent him to bed but lasted only a few hours. Next day, however, his legs became so weak, the palsy beginning in the ankles and ascending, he could not stand and on the third day his hands, and later in the day his arms, became so paralyzed he could not move them. He suffered slight and transitory pains in the arms and legs for a few hours at the outset of his illness. Thruout the course of his illness he had no difficulty in controlling the bladder and rectum and no paresthesia or anesthesia.

He was brought to the Philadelphia General Hospital, where I first examined him, on 1-23-'18. There was then a flaccid palsy, complete in extent and total in severity, of the arms and legs, of the parietal abdominal, and thoracic muscles. Breathing was diaphragmatic but there was no disorder of speech or difficulty in swallowing. The neck muscles were a little weak. The cranial nerves all performed their functions well. Sensibility to touch, pain and temperature were normal over the entire body. The knee, biceps, Achilles, and abdominal jerks were all absent but the cremasteric was present on both sides. The plantar jerk was also absent but that is not significant, because it is often not present in healthy people. There was of course no ankle clonus. The temperature was normal. There was no pain on pressure over the nerve trunks. There was some slight enlargement of the lymph glands thruout the palpable portions of the body. The heart and lungs were normal save that both apices gave signs of a possible incipient tuberculosis. The urine was normal. Three days

later (1-25-'18) he began to be able to flex and extend the left thumb a little. By 1-30-'18 he could raise his right hand to the mouth but was too weak to hold anything. On 2-1-'18 he could raise both arms and weakly use the hands. He then, only after function had been quite a little regained in the arms, began to regain power in the legs and on 2-19-'18 could manage to get out of bed and into a chair. On 2-28-'18 he had largely recovered motor power, or rather extent of movement in all extremities, but was easily tired on using his hands, and could not walk without fatigue for more than five minutes. He was discharged shortly after, entirely well. He had no fever during his stay in the hospital, and tho for a time his muscles grew more and more soft, there was at no time any local atrophy. His reflexes were still absent at the time of his discharge and probably will never return.

I am strongly inclined to the pathologic diagnosis of multiple neuritis rather than acute anterior poliomyelitis, in the etymologic meaning of the word, because of the complete restoration of function. It is hypothetically possible that the anterior horns may be poisoned without any inflammatory destruction of cells, but with a palsy as widespread and complete as in this case, one would expect a destructive lesion and destroyed cells are not recreated; greatly inflamed nerves often are. Pain along the nerve trunks is also of diagnostic importance. When I first saw him I gave (to myself) a very bad prognosis. I diagnosed an ascending anterior poliomyelitis and expected it to reach the respiratory centers rapidly and to cause death.

The interesting point in the case is the quick recovery with complete restoration of function, only forty-four days elapsing between the beginning of palsy and complete recovery—recovery so complete that he could labor. A point of scientific interest is the continuance of the absence of the deep reflexes. This often occurs in infectious neuritis, *e. g.*, in diphtheria the knee jerk may continue absent many years after the acute illness, in fact for life; even in cases without palsy of the legs, and long after recovery from arsenical and alcoholic neuritis it may be impossible to elicit any of the deep reflexes.

The lesson my case teaches is, never to

give an absolutely bad prognosis no matter how widespread the palsy, barring of course respiratory involvement from invasion of the respiratory centers. It should also be remembered that the improvement of the palsy may continue for many months even without treatment. I am beginning to doubt whether electric stimulation plays a large, or even a small, part save as it exercises the muscles, in this late improvement, but local massage and passive exercise of the individual muscles does help a great deal. Furthermore the patient should be encouraged to try voluntarily to contract the muscles in which even only a little power remains.

Our recently acquired knowledge has changed and widened our conception of the disease and a new name is needed for it. To speak of acute anterior poliomyelitis, when the lesion may be in the peripheral nerves, the spinal cord, the medulla, or the brain, and to speak of infantile palsy when the patient may be a middle-aged man, is confusing to students and inaccurate. To call a disease palsy when there may be no palsy is absurd. The earlier conception of the disease was based on the *post mortem* findings in patients who died of other diseases years after the attack and in whom there had been residual palsies needing the attention of orthopedists and neurologists. Further the patients all had had the acute attack in childhood. The lesion found at autopsy, a mere scar one might say, was an atrophy of the cells of the anterior horns of the spinal cord; hence the pathologic designation, acute anterior poliomyelitis and the clinical name, acute infantile palsy. Since it has been discovered that the acute lesion may involve the gray matter of the medulla and of the cerebrum as well as the spinal cord and that adults, tho less frequently than children, are affected, and since it has been proven that multiple neuritis may present a similar clinical picture, and finally, since it has been established that the poison may not attack the nervous system at all, but causes only general symptoms, we certainly need a more accurate name. If it should finally be proven that one specific organism causes the disease, the naming would be easy; give the bacterium a name connoting nothing and call the disease after it, but there is still doubt in the minds of some investigators whether only one or-

ganism is guilty. One of the things which creates doubt is the fact that in the present epidemic of influenza, so called, there have been occasional cases of palsy clinically indistinguishable from acute anterior poliomyelitis, which indicates either that more than one microorganism may cause identical lesions and therefore similar symptoms, or that, mixed with several other, and there are several, organisms sweeping the country today is the microorganism of infantile spinal palsy. In any event we need some other designation for the disease than those in use at present.

THE END RESULTS OF TUBERCULIN TREATMENT IN CHRONIC PULMONARY TUBERCULOSIS.¹

BY

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It is now twenty-eight years since the announcement of the discovery of tuberculin by Robert Koch in 1890, and out of the mass of conflicting evidence as to the status of this much debated therapeutic agent there has crystallized an opinion favorable, on the whole, to its value in selected cases, based upon the experience of many observers in widely different fields of clinical medicine. If we dismiss the extravagant hopes that were entertained soon after the announcement of its discovery, its reckless administration in large doses, and its careless use in incompetent hands, it is apparent that from the beginning we possessed in tuberculin a remedy potent alike for good or evil. But is not this equally true of digitalis, strychnia, arsenic and other powerful drugs of demonstrated value?

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Tuberculin is today in general use in all well conducted sanatoria, and there is a substantial agreement among sanatorium physicians that patients who have received tuberculin treatment are less likely to relapse after arrest of their disease, that they more readily regain working efficiency, they more frequently lose their bacilli, and their restoration to health is more permanent after a period of years than that of patients under similar conditions and in similar stages of the disease who do not receive specific treatment. The fact that surgical tuberculosis involving bones and joints, tuberculosis of the eye, lesions of the skin, as lupus, favorable changes in which are more readily appreciable than in tuberculosis of internal organs, very generally show striking improvement under tuberculin, would cause us to consider it not improbable *a priori* that similar favorable results might be expected in the lungs. In reviewing the recent literature of tuberculin one is struck by the favorable testimony of the ophthalmologist, the orthopedic surgeon, and the dermatologist who have an opportunity to actually see, in local tuberculous lesions of their special fields, the striking effects of tuberculin treatment. The laryngologist is more skeptical as to the good effects of tuberculin, and this I attribute to the fact that the secondary tuberculous lesions he sees in the larynx are so often terminal complications of advanced disease in the lungs. These cases are wholly unsuited for tuberculin treatment. In cases of tuberculous adenitis of the cervical and axillary glands, often causing disfiguring deformity, the effects of tuberculin administration are also often brilliant and plainly evident.

It should be remembered that tuberculin, which in itself has no direct curative prop-

erties, is in no respect like diphtheria anti-toxin or therapeutic vaccines, but is an active immunizing agent dependent for its useful effects upon its power to stimulate the production of antibodies, protective substances produced within the body itself, which render its tissues unfavorable to the growth of tubercle bacilli or perhaps directly inhibit their pathologic effects.

It is apparent then, that for the production of good results from the administration of tuberculin it is necessary that there should be not too great a depression of the normal physiologic functions, a limitation which at once removes from the scope of possible tuberculin treatment a large class of cases. Patients with severe mixed infection or with grave complications, such as nephritis or diabetes, cases of acute miliary tuberculosis, rapidly advancing cases of pulmonary tuberculosis with areas of softening and recent cavities, and advanced laryngeal cases, patients with organic heart disease with broken compensation, and cases complicated by suppurating sinuses with amyloid visceral changes, cannot be expected to react favorably to tuberculin. On the other hand, many incipient and early favorable cases do sufficiently well with the ordinary dietetic and hygienic treatment under the strict medical supervision of their mode of life, which can usually be best obtained in a well conducted sanatorium. Whenever it is possible I send my tuberculosis patients to a sanatorium with the expectation, not of a definite cure in many cases, but that the patient will become familiar with, and learn by precept and example the principles to be followed in the long, hard fight he is to make in order to get well and keep well. The patient who has been to a sanatorium is always a better patient, he is more amenable to discipline, realizes the formidable

nature of his disease, and is better equipped to cooperate with his physician in overcoming it. Relatively few patients, however, can remain at the sanatorium long enough to obtain a definite arrest or cure, and it is for these discharged sanatorium patients, who have been educated and trained in the anti-tuberculous life, that the tuberculin treatment is often especially indicated to maintain the improvement they have made, and in some cases complete their cure.

In general the special field for tuberculin administration is in that class of cases having good resistance without fever, who have attained a fair degree of improvement with the ordinary dietetic and hygienic treatment at home or in the sanatorium, but who have failed to go "over the top" and attain an arrest or cure of their disease. It is in these cases that we often see results which can be regarded as brilliant by the most conservative clinician. A cautiously increased course of tuberculin therapy will often impart the necessary impetus to cause the patient to lose his bacilli and attain a definite arrest.

Twelve years ago at the Presbyterian Hospital and in my private practice I began to select cases for tuberculin administration, chiefly among patients who had received previously the advantage of sanatorium treatment, but who had failed to obtain a cure. It is evident that this class of cases offers a severer and fairer test of the value of tuberculin than patients who, coincidentally with removal to the country, in an adequate sanatorium environment, receive the tuberculin together with rest, a proper diet, freedom from care and change of climate. It seems reasonable to assume that after patients have had, for periods of time varying from one to two years, the usual dietetic and hygienic treatment and then, with everything going on as before

except the addition of tuberculin, show a quick response and a definite favorable change, that the improvement is attributable to the tuberculin and the tuberculin alone.

I first used Koch's old tuberculin, but for seven years have employed exclusively Bazillen emulsion, which I believe to be the best therapeutic preparation, as it contains not only the extractives of Koch's old tuberculin, but also all the substance of the bacillary bodies, and is to be preferred in every case to those tuberculins from which the alleged injurious substances are claimed to have been removed. We are not sufficiently familiar with the chemistry of the tubercle bacillus and its derivatives to be able to remove the reaction-producing substances without impairing its therapeutic value. The whole subject of tuberculin administration has been invested with a too elaborate technic, and has discouraged the general profession from the trial of a simple method of treatment which is full of potential benefit for many patients. Sahli, Weicker, and Koch himself urged that tuberculin should not be limited exclusively to sanatoria and the practice of specialists, but should be used more extensively by general practitioners of medicine. The time has certainly arrived when every tuberculosis clinic at least should have its tuberculin class. The well established principles of treatment now generally followed, the proper selection of cases, the not too rapid increase in dose, and the sedulous avoidance of reactions surely are not difficult to achieve, and I can see no reason why any well trained physician, who is capable of administering vaccines or diphtheria antitoxin, is not also competent, with the exercise of good judgment and the necessary patience, to give the tuberculin treatment.

While care should be taken to avoid too

large or too rapidly increased dosage, much time may be lost by beginning with or continuing too long excessively minute and meticulous doses. It is quite probable that doses of $1/10,000,000$ or even $1/1,000,000$ of a gramme, as sometimes employed, are practically as inert as water. With an adult I have usually employed a beginning dose of $1/10,000$ to $1/5,000$ c.c. of Bazillen emulsion as it comes from the laboratory, and I have never seen a reaction or unfavorable symptom of any kind with this beginning dose. The proper dilutions are made with sterile normal salt solution with one-half per cent. phenol as a preservative.

Beside the regular routine effects, which in favorable cases are gradually obtained from tuberculin over a long period of time and which are perhaps not very striking, but are after all of great importance for the patient who may thereby attain an arrest of his disease, there are the occasional spectacular results, all too few in number but which every one who has much to do with tuberculin sees at times. I have selected a number of such cases for brief citation from my case records.

Case I—Jennie M., aged seventeen years, came under my care May 1, 1908. Her mother, two maternal aunts, and an uncle had died of consumption and another uncle was ill with the same disease. She had typhoid fever seven years previously and had coughed for several years with purulent sputum, hemoptysis, chills, fever, profuse night sweats, loss of flesh and strength, dyspnea, poor appetite and amenorrhea for two months. She was pale, ill nourished and stoop shouldered. There was marked dulness and diminished breath sounds over both upper lobes. Afternoon temperature 99.4° to 100.8° F., pulse 100, respirations 22, weight $103\frac{1}{2}$ pounds. No tubercle bacilli in sputum. By October, she had made, under dietetic and hygienic treatment, a gain of eight and one-half pounds in weight, but numerous râles were present over the right apex. In December, she had a small hemorrhage, and in February bacilli were detected in her sputum. From March to October she was at the Adirondack Cottage Sanatorium, where she improved considerably in spite of one large hemorrhage. During the winter of 1909-10 she did badly and

was kept in bed for several weeks, during which time her temperature ranged between 101° and 102° F. After her fever had subsided, altho she was not considered a very favorable case for the treatment, she was given injections of old tuberculin and made a surprising improvement. She received thirty-one injections in all; her cough and expectoration gradually disappeared, her temperature became quite normal and her hemoptysis ceased. The summer she spent in the country and on her return in November she stated that for four months she had not coughed at all and it was impossible to obtain a specimen of sputum for examination. Dulness persisted over both upper lobes, but she had no râles. In December, 1911, her improvement had been maintained, she was free from symptoms and for the past four years she had had good health and has been regularly employed as a bookkeeper.

Case II—Amelia M., aged twenty-two. Family history negative as to tuberculosis. She had measles as a child, no important illness since. She first came under observation June 12, 1908, with a history of cough of six months duration, purulent sputa, hemoptysis, loss of flesh and strength, fever afternoons, night sweats for three months, pains in the chest; fair appetite, but poor digestion, menstrual function regular.

On physical examination, pale, poorly nourished, marked dulness and broncho-vesicular breathing, increased whisper over both upper lobes; over the left behind, pleuritic friction sounds. Temperature 101° F., pulse 126, respirations 22. Weight $87\frac{1}{2}$ lbs. Six months previously she weighed 100 lbs. Tubercle bacilli present in the sputum. She was put on dietetic and hygienic treatment and improved considerably as regards cough, expectoration, and temperature. On December 8, 1909, her general condition, however, was not very satisfactory. Temperature 98.4° F., weight 99 lbs. Tuberculin injections beginning with $\frac{1}{10}$ mgrm. were begun March 9, 1910, were continued twice a week and increased up to $9\frac{1}{2}$ mgrm. as a maximum dose. She had 66 injections in all. Tubercle bacilli disappeared from the sputum. November 15, 1910, on physical examination there were dulness and broncho-vesicular breathing over both upper lobes, more marked over the right. No cough or expectoration and she feels much stronger. Temperature 98° F., pulse 72, weight 105. Under date of December 30th, her marked improvement has continued and she considers herself well.

Case III—An inspector in the park department, aged thirty-five years, had a cough for eight months with purulent sputum, loss of flesh and strength, chills, fever, night sweats, dyspnea on exertion, and one week before coming for examination on March 22, 1910, he spat up a small quantity of blood for the first time. He had lost twenty pounds in weight and bacilli were present in his sputum. There were dulness, broncho-vesicular breathing, whispering bronchophony and fine râles at his right apex. His afternoon temperature was 99° F., pulse

102. He was unwilling to leave his work to take sanatorium treatment and, on March 31st, tuberculin treatment was started with an injection of $\frac{1}{1000}$ gm. of Bazillen emulsion. Injections, twenty-three in all, were continued twice a week, the dose being gradually increased up to a thirtieth gm. June 14th, the date of his last injection, he had gained twenty-five and one-half pounds, his râles had disappeared, temperature was normal, he had lost his cough and expectoration and he considered himself perfectly well. He was examined again in November and frequently since; he has had no recurrence of his former symptoms and all that remains of his morbid physical signs is a slight residual dulness at his right apex. His cure has been maintained for more than eight years, during all of which time he has been at work.

Case IV—In October, 1911, a daughter of this man, aged fifteen years, came to me on account of small hemoptyses which she had had for five days, slight cough and morning sputum which had lasted for several months. When six years old, she had an abscess in the neck. She had slight dulness and increased breath sounds over the right apex and posteriorly over both apices fine râles were heard. Evening temperature 99° F., pulse 120, weight 106 pounds; no bacilli in sputum. She received tuberculin treatment twice a week from October 21st to February 1st. She had then lost her cough and expectoration, gained seven and one-half pounds, had normal afternoon temperature, râles cleared up and she felt very well. She was examined again in March when her condition was unchanged and she has reported to me at intervals since. For more than five years she remained in good health, until in July, 1917, she was killed in an automobile accident.

Case V—November 21, 1910. Julia O'B., age 38; married. Father and a sister died of consumption. Has always been well except for present illness. Two years and a half ago had a profuse hemorrhage and two years before had a suppurating gland in the left side of the neck. For more than two years she has had a slight cough, with scanty mucopurulent sputa. No loss of flesh or strength; no chills or fever; no night sweats. Is somewhat short of breath on exertion. Appetite good; digestion excellent; menstruation regular. Was at a tuberculosis sanatorium in Sweden for two months a year ago. Was at Stony Wold for six months and was discharged last August.

P. E. Fairly nourished; good color; dulness, broncho-vesicular breathing, increased whisper, exaggerated vocal fremitus, subcrepitant râles over both upper and right middle lobes. Signs extend lower over the left. Temperature 98.6° ; pulse 90; weight $136\frac{1}{2}$. Has been sleeping out of doors in Morristown, N. J., since leaving the sanatorium. T. B. present in sputum.

On February 22, 1911, tuberculin treatment was begun with $\frac{1}{1000}$ c. c. and was continued twice a week until June, 1911, when she had lost her cough and expectoration and had at-

tained a weight of $140\frac{1}{4}$. She said she could not feel better.

December 29, 1911. Spent the summer living out of doors in Morristown, N. J., and has done extremely well.

P. E. Well nourished and good color. Slight residual dulness over right apex. No râles. Temperature 98.2° ; weight 141.

June 13, 1912. Has been living in the East River Homes under favorable conditions for past six months. Had no cough or sputa all last winter. After a somewhat fatiguing trip to Morristown, N. J., had a small hemoptysis night before last. P. E. Cervical glands a little enlarged; moderate dulness, increased breathing over both apices; over the left, breath sounds a little sticky. Temperature at 11 a. m. 98.6° ; pulse 96; respirations 18; weight $136\frac{1}{2}$; tubercle bacilli present in the sputum, which is tinged with blood.

June 12, 1913. She has been entirely free from cough and expectoration and has had no hemoptysis. Considers herself perfectly well. Appetite and digestion good. P. E. Moderate dulness over right apex; high-pitched percussion note over the left. No râles. Temperature at 6 p. m. 98.8° ; weight $141\frac{1}{4}$.

She has remained in good health since the date of the last examination and has been able to work as a nurse in the Home Hospital. She has had no pulmonary symptoms for five years.

Case VI—April 6, 1910. Helen K., age 21; single. Stenographer. Father died of consumption. Measles and whooping cough as a child. No serious illnesses since. For past 15 months has been losing flesh and strength. Slight hacking cough; mucopurulent sputa. No chilly feelings or fever. No dyspnea. Has had a number of profuse night sweats. Pains between the shoulders. Appetite fair. Suffers from occasional attacks of indigestion and sick headaches. Menstruation regular. P. E. Sallow, pale and rather poorly nourished; cervical glands somewhat enlarged. Percussion note high-pitched over right apex. Temperature 99.5° ; pulse 84; weight 107—a year ago 113. No T. B. present in sputum. Von Pirquet tuberculin test positive.

On April 12th, she was put on tuberculin treatment and received two injections per week up to June 11th, when she had lost her cough and expectoration, the night sweats had disappeared, was feeling stronger, and her weight had increased to 115 pounds.

The summer and fall of 1910 she spent in Denver. Since her return to New York in December, she has been working steadily as a stenographer, has felt very well and has had no cough or expectoration.

She was not examined again until March 31, 1916, when for ten days she had had a feeling of oppression in the chest, but no cough or sputum. Appetite had been good. Fine râles were detected at the right apex and behind there was moderate dulness and wavy modified breath sounds, with an occasional subcrepitant râle. The breath sounds over the left apex behind were of the "cog wheel" type. Her

weight was 103½. Temperature at 8.00 p. m. 98.6; pulse 84; respirations 18.

October 7, 1917. Slight dulness persisted at the right apex, but there were no râles present. Weight 107. Has no cough or expectoration.

October 27, 1918. Slight residual dulness at right apex. Weight 112½. No pulmonary symptoms.

Case VII—February 5, 1911. Marvin B., age 43. Accountant. A paternal aunt died of hasty consumption, family history otherwise negative as to tuberculosis. Has had no important previous illnesses. In 1902 spat up a little blood and at infrequent intervals since. Morning cough since last November, purulent sputa. Had an attack of "grippe" two weeks ago, since then has had chilly sensations and several night sweats, has felt feverish afternoons. Has been losing flesh and strength since last May, appetite has been poor and suffers from indigestion—pains in epigastrium and distension after eating, nausea, eructations.

P. E. Poorly nourished, pale. Moderate dulness over right apex, behind over right upper lobe breath sounds and whispered voice are increased and rubbing, pleuritic friction sounds are heard. Temperature 5 p. m. 99. Pulse 92. Weight 130½, a year ago 145. Nares-septum deflected to left. Cervical glands slightly enlarged. No tubercle bacilli present in the sputum, Von Pirquet's tuberculin test positive. February 6th, tuberculin treatment was begun with $\frac{1}{1000}$ c. c. and continued twice a week in graduated doses until April 23rd his maximum dose attained being $\frac{1}{20}$ c. c. He gained 15½ pounds in weight, appetite and digestion were normal and the neck glands were no longer palpable. Râles disappeared, the only remaining morbid pulmonary sign was moderate dulness over right upper lobe. He continued to gain in weight after cessation of the tuberculin treatment and May 20, 1912, weighed 156½. He has continued in good health for past six years but has at times spit a little blood. February 1, 1918, was again examined after an attack of "bronchitis" lasting two weeks—cough, mucopurulent sputa, one slight hemoptysis. P. E. Dulness, modified breath sounds—interrupted wavy inspirations over right upper lobe. Over left apex high-pitched percussion note, soft amphoric breathing, a few fine râles. Temperature 6 p. m. 98.2°. Weight 144. No T. B. present in sputum.

Case VIII—May 20, 1912. Thomas F. W., age 46; broker. A brother, a sister and several cousins died of pulmonary tuberculosis. Measles as a child. Four years ago had typhoid fever. Last January had an attack of "bronchopneumonia," after which he took a short sea trip, by which he was much improved, but a persistent morning cough has continued with copious purulent sputa which contained tubercle bacilli. Has had occasional slight hemoptysis, no pain but a feeling of oppression in the chest. Has had several night sweats recently. Appetite and digestion are good. No alcoholic habit. Smokes two cigars and one or two pipes a day.

P. E. Tall—6 feet 5 inches. Poorly nourished; chest is flattened, shoulders stoop. Dulness, exaggerated vocal fremitus, increased breath sounds and whisper over right upper and middle lobes. Behind, inspiration clicks and inconstant subcrepitant râles are elicited. Temperature at 6 p. m. 100°; pulse 120; respirations 18; weight 171, a year ago 177.

On May 22nd, tuberculin treatment was instituted with $\frac{1}{2000}$ c. c. of B. E. and was continued twice a week up to June 16th, when he was admitted to Loomis Sanatorium, where the tuberculin treatment was continued.

December 24, 1912, there was dulness, increased breath sounds and whisper over right upper lobe; no râles were demonstrable; he weighed 187½; the sputum still contained numerous tubercle bacilli.

April 2, 1913, he was discharged from Loomis Sanatorium as an arrested case. A few bacilli persisted in the expectoration. There had been a notable improvement in his physical signs. The percussion note was a little high-pitched over the right upper lobe and the breath sounds were somewhat exaggerated. Temperature at 5 p. m. 100°; pulse 96; weight 199. At Loomis he attained a maximum dose of $\frac{1}{10}$ c. c. tuberculin.

He returned to business and reported regularly for examination at intervals of two or three weeks to a month. He continued to gain weight and on October 25th weighed 202½ pounds. He had passed three negative sputum examinations, tho at the last, September 15, 1913, a few bacilli were found.

January 19, 1918. He has been free from cough and expectoration for the past five years. His weight has remained between 212 and 216. Occasionally when he has had a cold, a sputum examination has been made at intervals of three or four months, but has always been negative for bacilli. He has no râles, no demonstrable morbid pulmonary signs. He has been able to carry on a large and important business and has led an active out-of-door life, playing golf, and states that he has had better health in the past five years than for ten years before he was ill.

Case IX—December 24, 1915. Oliver G., age 30; single. Mother, a younger sister and a maternal aunt died of consumption. Measles, whooping cough and diphtheria in childhood. Malaria at 12. Frequent attacks of sore throat and "catarrh." Pleurisy six years ago, at which time he was in bed for six weeks. Has had a hacking cough since, which has been worse in winter. Purulent sputa, no hemoptysis. Has lost flesh and strength. Quit work as a wire drawer one month ago. Dyspnea on exertion. Pains in chest, which are worse on the left side, also in shoulder. Chilly sensations; feverish afternoons. Profuse night sweats. Appetite poor; indigestion and diarrhea for the past month. Has had marked hoarseness and dysphagia for two months. For three weeks both knees have been swollen and painful. Was formerly an excessive beer drinker—25 glasses a day—and had also an excessive cigarette habit—20 to 25 a day. Has

stopped his beer and tobacco for three weeks.

P. E. Fairly nourished; cervical glands enlarged; dulness; broncho-vesicular breathing; increased whisper over both upper and right middle lobes. Numerous subcrepitant râles over left upper lobe and a few are also heard at right apex. Temperature at 12.00 p. m. 99.5°; pulse 108; respirations 18; weight 113½, normal weight a few years ago, 175. The larynx shows a considerable thickening of both arytenoids and a small ulceration of the right cord. Tubercl bacilli present in sputum.

He was put to bed and was kept under observation for several weeks, during which time his temperature ranged between 97.8° and 102°. The lesions in his throat and lungs were progressive and he lost weight. On February 4, 1916, there were definite signs of a small cavity below the left clavicle. Weight 132½; his temperature having fallen and not exceeding 99 to 99.5 in the afternoon.

He was put on tuberculin treatment February 26th, with an initial dose of $\frac{1}{1000}$ c. c. B. E., which was continued until July 19, 1916, when he received a maximum dose of $\frac{1}{500}$ c. c. This patient showed a most extraordinary improvement in his throat lesions and in his general condition, having attained at the end of his treatment a weight of 152½ pounds. The arytenoids were infiltrated, but the vocal cords approximated very well, altho grayish and discolored, the right especially. The hoarseness and pain on swallowing had practically disappeared, the small ulceration on the right cord had apparently healed. Bacilli were still present in the sputum. His temperature ranged between 97.2° and 98.6°.

I arranged for his admission to Loomis Sanatorium Annex on August 18th, where he remained as a patient until May 1, 1917, and made a further substantial gain in weight. His maximum weight on February 22nd was 167 pounds. He was able to do some work and has since been employed in the institution. He was examined by me again in the summer, when there was a further recession in his physical signs and his constitutional condition was regarded as very satisfactory.

Case X—January 20, 1916. Raoul H., age 32. Married; architect. A paternal aunt died of tuberculosis of the lungs. Scarlet fever at 4; acute articular rheumatism at 10; a severe attack of enteritis at 18. Tonsils and adenoids removed at 5. Had laryngitis at 20. Was told he had endocarditis at 21 and was disqualified for military service in France. Was treated for hay fever and asthma three years ago; 18 months ago had cough and purulent sputa; six months later, a considerable hemorrhage was followed by a dry pleurisy on the left side. Has lost flesh and strength and has had chills, fever, night sweats and pains in left chest. Appetite is generally good; digestion fair. Dyspnea on exertion; occasional feeling of palpitation and faintness; sleeps poorly. Does not use alcohol or tobacco. Received sanatorium treatment from April to July, 1916. Temperature at no time exceeded 100°.

P. E. Fairly nourished; good color; cervical glands slightly enlarged. Dulness, increased vocal fremitus, exaggerated breath sounds and whispered voice over right upper lobe; behind an occasional fine râle is heard. Over left upper lobe and extending lower than over right more marked dulness, broncho-vesicular and "cog wheel" breathing, whispering bronchophony. Temperature at 7 p. m. 98.6°; pulse 84; respirations 18; weight 152. Between January 10th and 20th the temperature ranged from 97.1 to 99.4. Sputum contained tubercle bacilli last summer.

February 9th. No bacilli present in sputum. At apex of cardiac area there is distinct roughening of the first heart sound. Under dietetic and hygienic treatment and residence at the East River Homes, he did fairly well, but there was a progressive loss of weight and at times a slight afternoon temperature as high as 99.6°.

On June 21st, tubercle bacilli were present in the sputum. Weight 139½.

Tuberculin treatment was begun on June 26th, when he received an initial dose of $\frac{1}{1000}$ c. c. This was continued up to June 8, 1917, when a maximum dose of $\frac{1}{50}$ c. c. was given. Bacilli disappeared from his sputum. He lost his cough and expectoration, râles were no longer demonstrable and his temperature has ranged from 97° to 98.6°. He gained in flesh and strength, and throughout his treatment has continued his work as an architectural designer. He has remained well to the present time with slight residual inactive signs at apices; has a good appetite and digestion; is living in the country at Pelham, N. Y. and his weight was 146½ on June 26, 1918.

Case XI—October 5, 1917. Catherine F. B., age 25; married. Father died of consumption 22 years ago, also a paternal uncle. Has had "bronchitis" every spring and fall for ten years. Had an attack of grippe eight years ago. Has had cough for three weeks, mucopurulent sputa; hemoptysis two weeks ago and also at times before, when she has had "colds." Has lost flesh and strength in the past six months. Pains in region of sternum and back; chilly sensations; feverish afternoons; dyspnea on exertion; no night sweats. Appetite very poor; indigestion; nausea; eructations.

P. E. Fairly nourished; good color; cervical glands not enlarged; dulness; increased breath sounds and whisper over right upper and middle lobes, no râles demonstrable. Percussion note over left apex high-pitched and short. Breath sounds are modified—above the nipple and in the axilla fine crepitant râles are heard. There is a small spur projecting from the septum in left nostril. Oropharynx and larynx normal. Temperature at 5 p. m. 99.8°; pulse 96; respirations 24; weight 134, three months ago, 153. No tubercle bacilli in sputum.

Under hygienic and dietetic treatment for a month she gained 10 pounds in weight, but fine râles were present over both upper lobes and slight hemoptysis continued.

November 30th. Tuberculin treatment was begun with $\frac{1}{5000}$ c. c. of B. E. which was con-

tinued up to June 9th, with graduated weekly doses, attaining a maximum of $\frac{1}{50}$ c. c., when she had gained 19 pounds, had lost her cough and expectoration, felt strong and well and has remained in good health since.

Case XII—October 2, 1913. Charles A. Q., age 23; stenographer; single. Family history negative as to tuberculosis or other significant diseases, except that a paternal uncle died of consumption. Measles in childhood; had catarrh of the bowels when 6 years old. Denies venereal disease. Has been in ill health for past four years. Has been treated for malaria and rheumatism. Had occasional hemoptyses seven years ago. Has lost flesh and strength, feverish afternoons, dyspnea on exertion, appetite fair, digestion poor. Complains of pains in back and legs. Denies cough, but has a morning expectoration of purulent sputum.

P. E. Pale; poorly nourished; dulness, broncho-vesicular breathing and increased whisper over both upper lobes. Cervical glands enlarged; temperature at 7.00 p. m. 100°; pulse 90; respirations 24; weight 111 $\frac{1}{4}$, four years ago, 123. Has a psoriasis eruption over the shoulders, extensor surfaces of the arms and legs. Tubercle bacilli present in the sputum.

Tuberculin treatment was begun on October 10, 1913, with an initial dose of $\frac{1}{10000}$ c. c., and was continued until March 28, 1914. He did extremely well and at this date had only a little moderate dulness over the right upper lobe; no cough or expectoration. Weight 123 $\frac{1}{4}$. Has lost his bacilli.

On July 30, 1916, weighed 130 $\frac{1}{2}$, with no positive morbid pulmonary signs except a little high-pitched percussion note over the right apex. No tubercle bacilli in sputum.

In the spring of 1918 he was accepted by an army board for service and was sent for training to Camp Upton. He is now in France and in good health.

I do not cite these cases as illustrations of what will often be seen in the administration of tuberculin, but if the treatment were more extensively used in suitable cases, I have no doubt that more of these exceptionally favorable results would be obtained, for it is impossible without trial to say what patients will respond well to the stimulus of the injections, just as it is equally impossible to say why tuberculosis in some cases runs a rapid and fatally progressive course, terminating in a few months and in others continues over a long period of years with relatively slight impairment of the health. In administering

tuberculin we are dealing with an unknown reaction which cannot be predicted in advance, but which must be gradually determined by cautious and careful study for each individual patient. The mysterious factors of what, for want of a better term, we call the patient's resistance are an important element, and it is certainly true that in many cases this can be developed and strengthened by immunizing doses of tuberculin.

In the past ten years I have treated with tuberculin 57 cases which have continued under observation for periods varying from one to eight years after the conclusion of their treatment. Of these, 28 were markedly benefited, 15 having made a definite arrest of their disease. Nineteen others received benefit to a less extent, in six no effect whatever could be attributed to the treatment. Twelve cases have died, nine from the ordinary progress of their disease, one from intercurrent lobar pneumonia, and two from spontaneous pneumothorax. In perhaps half of the cases that subsequently died there had been improvement in symptoms which could be fairly attributed to the tuberculin administration, and it is believed their lives were prolonged and made more comfortable. In no case could the treatment be considered to have had an influence in determining the fatal issue. Of the 57 cases reported on, 38 had positive sputum, 19 at no time had bacilli present. Of the complications to be noted, there were six cases who had well marked tuberculous laryngitis; there was one case of tuberculous peritonitis in whom the ascites disappeared without recurrence; one case of tuberculosis of the wrist joint, which made a perfect recovery without deformity or impairment of joint function; in six patients the cervical glands were con-

spicuously enlarged, sufficiently so to constitute a disfiguring deformity. In all of these glandular cases the influence of tuberculin treatment was favorable in effecting a marked reduction in the size of the glands. There was one case who had been previously treated for a tuberculous iritis, and in one patient bacilli were found in an excised tonsil. In only one of the throat cases could any good effects be seen from the tuberculin—in this case a tuberculous ulcer healed and the patient gained 39½ pounds. Twenty-four of the cases here reported had received sanatorium treatment.

THE NON-LIABILITY OF CHARITABLE INSTITUTIONS FOR THE NEGLIGENCE OF PHYSICIAN OR NURSE.

BY

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It was Irvin Cobb who commented upon the cheerful frame of mind induced in the average patient when, prior to an operation, he is presented with a general release of all liability and requested to affix his signature on the dotted line.

To what extent the courts will recognize such a document is a question which we need not consider here. This short article deals with cases where an institution organized for charitable purposes has failed to adopt this preliminary measure of precaution and the operation has gone awry.

Under the doctrine which may now be regarded as thoroly established, a charitable institution will not be responsible for injuries resulting thru the negligence or want of skill of the physician or nurse. The reason is generally stated to be found in public policy, for if the rule were otherwise,

the trust fund might be entirely destroyed and diverted from its proper purposes. Put in plain language, it is better for the one to suffer than the many.

Thus the Supreme Court of Michigan in a leading case (*Downs v. Harper Hospital, 101 Mich. 555*) where an insane patient while unwatched, had committed suicide by leaping from a window, observed that if a trustee or employee is guilty of negligence he may be held responsible individually, but the law jealously guards the charitable trust fund and does not permit it to be frittered away by the negligent acts of those employed in its execution. The trustees could not by their own direct act divert it from the purposes for which it was given. It certainly follows therefore, that the fund cannot be indirectly diverted by the tortious or negligent acts of the managers of the fund or their employees tho such acts result in damage to the innocent beneficiary. Those voluntarily accepting the benefit of the charity, accept it upon this condition.

At one time, Rhode Island adopted a contrary view denying any immunity to charitable institutions as such (*Glavin v. Rhode Island Hospital, 12 R. I. 411*), but this was subsequently changed by legislative enactment. (*Laws of 1909, Ch. 213, § 38.*)

It is somewhat curious, however, that the non-liability doctrine should be said to apply only provided due care has been exercised by the hospital in the selection of the guilty individual. (See *Hearns v. Waterbury Hospital, 66 Conn. 98*; *McDonald v. Mass. Gen. Hospital, 120 Mass. 432*; *Corbett v. St. Vincent's Industrial School, 79 App. Div. 334, affmd. 177 N. Y. 16.*) This limitation, it is submitted, is utterly illogical if public policy is to dictate that under no circumstances should there be any diversion of the funds.

Nor will the hospital be responsible merely because it accepts payment from patients able to afford it. Incidental revenue does not change its standing as a charitable institution.

What is probably the leading case in New York is *Schloendorff v. N. Y. Hospital* (211 N. Y. 125) decided in 1914. The latter institution does not charge either for board or for treatment if the patient is unable to pay, but if well-to-do, a charge of \$7.00 per week is made for board. Mrs. Schloendorff was suffering from a stomach disorder and came in the \$7.00 per week class. After some weeks of treatment, the house physician discovered a lump which proved to be a fibroid tumor. He consulted the visiting physician who advised an operation. The patient testified that she was informed that the character of the lump could not be determined without an ether examination, to which she consented but notified the house physician that there must be no operation. She was taken at night from the medical to the surgical ward and prepared for an operation by a nurse. On the following day, ether was administered and while she was unconscious a tumor was removed. Her testimony was that it was done without her knowledge or consent, tho in this she was contradicted by the house physician, the visiting surgeon and by several attendant nurses. Following the operation, and according to the testimony of her witnesses, because of it, gangrene developed in her left arm; some of her fingers had to be amputated and her sufferings were intense.

Judge Cardozo pointed out in his opinion, that it is now a well settled rule that a charitable institution, such as the New York Hospital, is not liable for the negligence of its physicians and nurses in the treatment

of patients. In New York, this exemption has been placed upon two grounds. The first is that of implied waiver, since one who accepts the benefit of a charity enters into a relation which exempts one's benefactor from liability for the negligence of his servants in administering the charity. The hospital remains exempt tho the patient makes some payment to help defray the cost of board, since such payment is to be regarded as a contribution to the income of the hospital to be devoted, like its other funds, to the maintenance of the charity. The second ground of the exemption is the relation subsisting between a hospital and the physicians who serve it. This relation is not one of master and servant. The physician occupies the position, so to speak, of an independent contractor, following a separate calling, liable of course for his own wrongs to the patient whom he undertakes to serve, but involving the hospital in no liability if due care has been taken in his selection. The same argument applies to nurses. The superintendent is a servant of the hospital. The assistant superintendents, the orderlies and the other members of the administrative staff are servants of the hospital. But nurses are employed to carry out the orders of the physician to whose authority they are subject. The hospital undertakes to procure for the patient the services of a nurse. It does not undertake thru the agency of nurses to render those services itself. He concludes with the following words:

"A ruling would indeed be an unfortunate one that might constrain charitable institutions as a measure of self-protection, to limit their activities. A hospital opens its doors without discrimination to all who seek its aid. It gathers in its wards a company of skilled physicians and trained nurses and places their services at the call of the afflicted, without scrutiny of the

character or the worth of those who appeal to it, looking at nothing and caring for nothing beyond the fact of their affliction. In this beneficent work it does not subject itself to liability for damages, tho the ministers of healing whom it has selected have proved unfaithful to their trust."

In *Ward v. St. Vincent's Hospital* (*39 App. Div.* 624) the subject was viewed from a different angle. This case was based upon an alleged contract by which a charity hospital, which was in the habit of furnishing private rooms and nurses, for full price, undertook to furnish the patient with a skilful, trained and competent nurse for a stipulated sum per week, but failed to do so and on the contrary furnished one unskilful and inexperienced who placed an unprotected hot water bag against the patient's leg while she was under the influence of ether, whereby she was severely burned. The decision was to the effect that assuming such a contract had been made and that it had not been fulfilled, the hospital was responsible. This goes to show that the non-liability rule does not rest on the ground of a diversion of trust funds but rather on the theory of waiver which may be implied, either where the patient is treated wholly or where he is treated partly without pay. That this is the true reason is shown by a line of cases where the party injured was not a patient at all. Thus in *Hordern v. Salvation Army* (*199 N. Y.* 233) the action was brought to recover for personal injuries received by a mechanic who had been engaged in making repairs on a boiler, the accident occurring thru the defective condition of a runway or staging. After pointing out that in New York the immunity of charitable corporations for the wrongs of their servants has been made dependent on the relation which the injured party bore to the corporation and not upon the sacred

character of the trust funds themselves, the court observed that if a charitable corporation in dealing with its property pursues a line of conduct which results in injury to outsiders, there is no reason why it should not be responsible since the purity of its general purposes will not justify its wrong.

A similar doctrine was announced in a later case where an outsider had been injured by collision with an ambulance and it was there stated that "it must now be regarded as settled that a charitable corporation is not exempt from liability for a tort against a stranger because of the fact that it holds its property in trust to be applied to purposes of charity." (*Kellogg v. Church Foundation*, *203 N. Y.* 191, 194.)

As illustrative of the point that the physician is to be treated not in any respect as a servant of the hospital, but rather as an independent contractor, are cases holding that a steamship company is not responsible for the negligence of the ship's surgeon provided that due care has been exercised in his selection. (*Allen v. State Steamship Co.*, *132 N. Y.* 91; *Laubheim v. De Koning-lyke N. S. Co.*, *107 N. Y.* 228.) A doctrine applied to hospital and medical departments maintained by railroad companies (*Eighmy v. Union Pac. Ry. Co.*, *93 Iowa* 538) or supported by the contributions of the employer and employees (*Barden v. Atl. Coast Line Ry. Co.*, *152 N. C.* 318; *Richardson v. Carbon Hill Coal Co.*, *10 Wash.* 648). Such cases differ, however, from those of charitable hospitals in that there cannot be spelled out the waiver already mentioned, being more analogous to instances where the patient has paid a full fee in which there would seem to be no absolute liability but rather only a duty of reasonable care in selection.

HOW TO RECOGNIZE PSORA WHEN NOT A SPECIALIST.

BY

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During the hours of consultation from nine to twelve, four times per week, in our venereal service at Cochin Hospital, out of sixty to one hundred patients seen daily, ten per cent. will be afflicted with psora.

For some unaccountable reason, there seems to be an epidemic of this disease.

Recently, while in the private office of a banker, he asked me to look at an eruption upon his arms and I had to tell him he had the itch. One of the leading cloth merchants of Paris came to consult me with the same disease, and passing the evening at the house of some friends in the most aristocratic quarter of Paris, the occasional uneasiness of my hostess, whom I know very well, caused me to question and finally examine her, and she also was suffering from the same malady.

Psora is called a venereal disease. Just why, I cannot tell, it can be contracted in many ways, besides sexual contact, and is in no wise localized to the sexual organs.

It is a contagious eruption of very minute pimples; pustular, vesicular, papular, intermixed and alternating, and terminating in scabs. It is caused by the insect of the Genus *Acarus*, *seu* *Sarcoptes* *seu* *Phthirium* *seu* *Cheyletes Scabiei*.

From time immemorial it has been looked upon as a shameful disease, and the practitioner wants to feel confident of no error when diagnosing it; it is because of this

that I have thought it might be worth while to renew our acquaintance with its symptomatology, and particularly at the moment when so many of our doctors are coming to France with the troops, where they are bound to see more or less of it. Many first-class practitioners have never seen a case in their whole practice.

The reason for the present extension of psora to the better classes in Paris is doubtless found in the promiscuity of social relations since the outbreak of war. Refugees from the destroyed districts and other countries have flocked to Paris, giving rise to many stations for the distribution of partly worn clothing, bedding, etc. Many buildings not originally intended for habitation have been used to house them, where the lack of bathing conveniences and proper care of the person, tends to breed the disease. The widespread want and misery have called all classes into service of some sort of relief, and ladies and men of refinement come into daily contact with the unkempt and unclean.

The classic points taught, by which to diagnose psora, can be summarized as follows:

1. It is a venereal disease;
2. Its contagion will often solve a doubtful diagnosis;
3. It is found exhibited on the feet, hands, wrists, arms, axilla and nates in both sexes.

These are the rules imposed upon the practitioner, and, while good as an index, form only a rudimentary basis for his examination as he progresses in knowledge of the disease.

Let us analyze them in their order.

1. *It is a venereal disease.*

I do not see the reason for this classification, except that it is communicated by sleeping in the same bed with one affected

and the reason is simple. The acarus is noctambulant; it is only at night that it becomes animated and active. It is at night that the one afflicted feels the intolerable itching and will scratch even while asleep, whereas he is hardly at all affected during the day.

It is said that one cannot contract the contagion by shaking hands, or coming into contact in the workshop, office, or schoolroom; but one of the hospital attendants at Cochin, who habitually carried the garments of patients coming for the treatment, to the sterilizing room upon his left shoulder, contracted the disease, the first papules appearing at the base of the neck and upon the left shoulder; cases of this kind, however, are exceptional; the disease is caught by sleeping with one affected, or in a bed that has been occupied by one affected. It should be noted that it is not in the least necessary for the intervention of the sexual act to affect the contagion, the simple sleeping in the bed with one afflicted is sufficient. Soldiers and refugees, sleeping side by side, are as surely contaminated as a man and woman who retire for another purpose than sleeping. Nevertheless, the latter is the most frequent cause, and because of this the disease is more frequent among the young, altho the old are not exempt; they catch it if exposed, but it is seen less frequently among them, for the reason that they more often sleep alone.

2. *To solve a doubtful diagnosis.*—Nothing could be easier of diagnosis than a case of psora six weeks or two months old, which creates a host of typical lesions in its course; but nothing is more difficult to recognize in the first few days of invasion, when the lesions are few and wanting in the marked characteristics which appear only with a certain age. It is in these cases

that one has to follow a varied and detailed inquisition to arrive at a differential diagnosis.

Do you sleep alone? Does the one you sleep with have a rash? Do they scratch themselves during the night? Have you any strangers visiting you? Do they scratch themselves? Have you slept with any strange person recently?

The contagious, pruriginous skin diseases are few and confined to the pediculoses and psora.

The *phthirus pubis* and its eggs are confined almost exclusively to the hairy portions of the pubis.

The *pediculus corporis* gives rise to excoriated lesions of marked character, usually in extended lines formed by the finger nails in scratching and almost constantly behind the shoulder and axilla.

The *pediculus capitis* is confined to the head and easily recognized.

The *pediculus tabascenium* occurring in phthiriasis is said to differ from the ordinary body louse, but the signs are practically the same.

Evidence of the existence of these parasites differs from that of psora, in that the latter commences as a rule with pinhead red points gradually creating a circumscribed erythema as a roseola, then fading to a yellow, brownish spot with from three to six weeks' age, at which time careful inspection will discover the parasite in these spots. Sometimes groups of these lesions are pustular, or infectious. The difficulty sometimes is to differentiate these spots, when widely distributed over the whole body, from the roseola of syphilis.

A patient having a communicable disease who comes complaining of itching and scratching, in the absence of pediculoses, has psora, and by the process of exclusion

a doubtful case can always be determined. The busy practitioner has no time to make the microscopic examination of a sarcoptus extracted from a pimple, and must therefore arrive at a diagnosis from the fact that psora is caught by sleeping with one so afflicted or in an unchanged bed that has been previously occupied by one, and when the lesions are not sufficiently advanced to present their characteristic signs, it is by the close questioning of the patient that one can arrive at the diagnosis. Sometimes this is not easy, for if the patient has slept clandestinely with one of the opposite sex and wishes to conceal the fact, an admission cannot be secured; then we must recur to other fixed signs.

Psora is always found in certain locations.—One of these locations may be free from lesions, but the others will not. If irritations and signs of scratching appear upon the face and neck, some other disease can be suspected, as psora does not appear on these surfaces.

In order to closely examine the ordinary locations of this disease, the patient should present the upper part of the body nude; one of the almost constant seats of lesions is in front of the axilla.

When a person is standing erect with the arm falling by the side, there is found, ordinarily, two or three wrinkles in rays extending from the point of the axilla upward and outward; when this region is invaded by the sarcoptus, these rays are increased to a half dozen, with slightly raised, reddened points extending along the long axis of the wrinkles, and are extremely characteristic.

The deep fold at the base of the nates is another favorite seat of the lesions and equally characteristic. They are not as a

rule as great in number as found in the axillary region, but are more prominent and pronounced in character.

The wrinkles formed by the flexion of the hand at the wrist are another situation where the lesions will be found, following the lines of the wrinkles.

The text-books make particular mention of lesions to be found upon the posterior surface between the fingers at the base; specialists do not count so much upon these, because they are so little characteristic.

In the male as well as in the female, the generative organs should always be examined, as they are the most frequent seat of primary lesions; male genitalia in particular is almost invariably attacked. The integument covering the penis, the prepuce and sometimes the glandes will present small, red pinpoints at rare intervals, slightly elevated, rather hard, and the patient will complain that they at times embarrass him because of the intolerable itching. When found in this situation they neither resemble nor can they be confounded with any other dermatoses.

In women the breast is frequently the seat of lesions; the irritation from scratching may resemble eczema; if it be eczema, it lends presumption to psora as the cause. If it is not eczema, and even with, there will be found the traces of scratching, with from two to ten, seldom more, small red points distributed over the gland, the areola and nipple, then look for the lesions in the other characteristic regions.

If a nursing baby is attacked, look at the plantar of the feet for elevated, inflamed pustules and examine the mother or wet nurse as the source of contagion.

I now come to the much-talked-of "scabies burrow."

In the specialist's clinic, crowded daily

with all varieties of dermatoses and genitourinary cases, the whole morning of examination will pass without the dermatologist once thinking of this much-talked-of sign. He will make his diagnosis of scabies by rapid localization and elicited history, and only thinks of looking for the famous scabies burrow in cases of quite recent date or feeble signs, which the histories fail to enlighten.

What is the scabies burrow? How does it look? Have you ever seen the burrow of a mole trailing its sinuous course along the top of the ground? The burrow of the sarcoptus is the same on the human skin. One sees it best on those of unclean habits and unkempt skin; coal heavers and workers in dark liquids, which penetrate the skin pores and darken it; when the burrow is recent and uncolored, it is difficult to recognize, but to bring out its character you have only to impregnate the surface of the raised portions with a drop of iodine, at once wiping it off—a simple precaution and often useful.

The white burrow is still more difficult to describe than to recognize. If you were to pass a needle along thru a part of the epidermis at the end of a finger without causing any bleeding, then withdraw the needle, you would see its track left, slightly raised, of a mat white appearance; substitute a sinuous track for the straight one made by the needle and the aspect is identical with the fresh burrow of scabies. It is difficult to distinguish and will often pass unnoticed.

The more ordinary lesions are the pimply eruption, forming papules and vesicles, often decapitated by the finger nails in scratching, and in certain situations, where most constantly found, following the apex of the folds of the skin of the wrinkles.

It is unnecessary to go further into the minutiae of detail; this article is not written for specialists in skin diseases, but for those who, by reason of this world-war and who enter the service, will be called upon to recognize diseases they are little accustomed to see.

The scabies burrow in which is found the sarcoptus, its eggs and its excretions, constitutes, it is true, the elemental lesion of psora; but where one does not find it, remember that psora is a regional disease—its lesions may be distributed all over the body, exclusive of the neck, face and head, but exists with localization in front of the axilla, the flexor wrinkles of the wrists in both sex; the breast of the female and prepuce or glands of the male and plantar surface of the feet in the nursing child. In these locations one makes the diagnosis. If in doubt, question the patient as to his surroundings and habits, and especially if he sleeps with anyone from whom he could have caught it, or someone to whom he may have communicated it; the single fact of contagion, outside of a case of pediculosis easy to eliminate, marks the disease as psora.

146 Avenue des Champs Elysées.

Treatment of Bronchitis in Children.—Potassium bichromate in small doses triturated with sugar of milk, (*Southern Clinic*, Aug., 1918) will give excellent results in treatment of bronchitis in children, and in bronchial irritations.

For Sudden Cardiac Dropsy.—Good remedy is citrate of caffeine, adult 2 to 5 grains 3 times a day. It is easily taken by feeble persons, and directly produces free flow of urine with relief of suffering.—*Med. Fortnightly*.



(From our Regular Correspondent.)

THE PURCHASE OF ALCOHOL AND GLYCERINE.

The purchase of alcohol and glycerine has again become possible for pharmacologic and pharmaceutical purposes, as well as for use in laboratories and for scientific research. The Ministry of Munitions is nearing the day when it can put up its shutters, and notification has just been made by the Department that supplies of alcohol will be available for other purposes than for killing persons. All manufacturers should now be able to obtain their requirements for industrial purposes from the customary sources and the supplies will only be restricted by the usual regulations of the Board of Customs and Excise. Spirit restriction has been in particular a bore to many, but the freedom of glycerine is the most convenient thing in the new order as far as medical practice is concerned, for the withdrawal of this valuable substance has been attended with great inconvenience to all prescribers. It is now promised in substantial quantities thru the ordinary retail channels. A further concession might now well be made in regard to alcohol, and that is research workers might be allowed to obtain it under favorable terms and not subject to the heavy excise penalties. In the production of alkaloids and the manufacture of synthetic remedies alcohol is all essential and only, I believe, in Great Britain are such activities paralyzed by the high price of alcohol. British manufacturers have in this way been penalized to the great advantages of German rivals, and it will be expected that such a contingency within the future be guarded against. The disabilities of our drug manufacturers in this direction have often been explained to the authorities, and apparently to sympathetic ears, but no reform has followed. Now would be a good opportunity to grant the concession, when the businesses have to be largely reconstructed and when everything to facilitate the reorganization of trade should have support.

WHAT IS LEGITIMATE WARFARE?

A letter has been published recently in the American press signed by the Regius Professors of Physics in the Universities of Oxford and Cambridge, and by the President of the Royal Corporation in the three divisions of the Kingdom protesting against the use of noxious gases in war. The communication testifies to their tender hearts but not to their hard heads. The reasons for the protest are threefold: (1) That

gas is an uncontrollable weapon whose effects cannot be limited to combatants; (2) that it condemns its victims to death by long drawn-out torture; (3) that it opens the door to infinite possibilities of horror. With regard to all these points it can be pleaded that gas is a menace only to a greater extent than other weapons of war, and it is impossible to say to nations at war "thus far shalt thou go and no further."

DRINK RESTRICTIONS AFTER THE WAR.

The question of the control of drink now that the war has ceased is causing a great deal of discussion, and very varying views are expressed even among medical men whose common consensus of opinion is, and has been now for a long time, that restrictions with regard to the sale of alcohol are all for the good of public health and national progress. But what restrictions should be made and by what machinery they should be enforced, in such a way that while preventing license we do not legitimatize Prussianism, is a matter of considerable difficulty. Of course much of this difficulty will disappear as the people become more educated, more aware of the evils of alcoholism and more alive to the many social disorders and disabilities at the root of which indulgence in alcoholism lies. At the present moment the people of this country are puzzled as to the fundamental matter of cause and effect in regard to alcoholism, the same position exactly prevailing in regard to tuberculosis. In both cases medical men and publicists point to the villainous housing conditions and say: In such an environment can you wonder that people are the victims of tuberculosis? Are you surprised that they take to drink? Undoubtedly bad housing and insufficient amenities for food and refreshment do lead to the public-house habit, and thus increase the alcoholism of the country. But it is equally true that if the public houses were better regulated, better found, and better managed, the houses would enormously improve under the more intelligent supervision of people who would profit by the example of good management. In a short time ideas of order and comfort with regard to domesticity would prevail to a much greater degree if the public house was a pleasant place of refreshment where man and wife could go together. In such family reunions drunkenness would soon be found to be quite out of the picture. There is no sense in maintaining alcohol restrictions because housing is bad, just as there is no sense in withholding state improvement in housing until alcoholism has decreased. There is an interplay between the two evils, neither is exactly the cause and neither is exactly the effect of the other. In England and Wales during the year 1913 there were no fewer than 188,877 convictions for drunkenness, 153,112 men and 35,765 women. These figures have steadily risen between 1909 and 1913, and the problem of dealing with drunkenness directly by punitive or other individual methods has not been solved. The conditions before the war had been thoroughly criticized altho nothing had been done. The

drink trade as a whole brought in enormous fortunes, not however to the shareholders, as a vast proportion of the money was squandered in competition between the proprietors and in wasteful methods of production and trade. Then came the institution of State Drink Control as a war measure, and with regard to the effects of this enactment Lord D'Abernon, chairman of the Central Control Board (Liquor Traffic) recently made the following public statement relating to alcoholism in women in England and Wales in the years 1913-1917:

Year	Convictions for Drunkenness*	Deaths from Alcoholism, excluding Cirrhosis of the Liver *	Deaths from Cirrhosis of the Liver *	Deaths from Suffocation in Infancy
1913...35,765	719	1,665	1,226	
1914...37,311	680	1,773	1,233	
1915...33,211	584	1,525	1,021	
1916...21,245	333	1,163	744	
1917...12,307	222	808	704	

Cases of Delirium Tremens treated in certain Poor Law Infirmaries*:

Period	Number of cases
Pre-war, 1913-14	214
Pre-control, 1914-15	239
First year of control, 1915-16..	121
Second year of control, 1916-17	45

*Women only.

These figures are not beyond criticism—for example cirrhosis of the liver might obviously cover pathologic conditions independent of alcoholism—but their broad meaning is unmistakable. It is clear that under appropriate regulations all the conditions of drunkenness in women, as compared with the year 1913, were reduced by 60 per cent. The decline in the frequency of delirium tremens among women is also remarkable, tho here again the figures must be looked at closely, as delirium tremens seems to occur in a very conspicuous manner figuring with great frequency in some official returns and being absent from others. There is, however, another piece of evidence as to the beneficial effect of drink control which should be brought forward. A significant falling off has taken place during the four years of war in the number of drunkards amenable to the Inebriates Acts. The admission to inebriate reformatories has gone down to less than a tenth of its previous total, and the same proportionate decline has taken place in the number of persons proceeded against for habitual drunkenness. There can be no doubt in anybody's mind that the control of drink has diminished drunkenness and that with the diminution of drunkenness there has been an improvement in

public health, and a desire among the public to do away with the evil effects of alcoholism.

The restrictions, however, as at present constituted, do weigh heavily in certain directions on the population. There is a sane and legitimate use of alcohol which is penalized by the excessive price prevailing for those who can enjoy it intelligently, because there are others who are unable to exercise self-restraint. There is a vexatious curtailment of the hours at which alcohol can be obtained, and it is quite likely that this act has led to a certain amount of secret drinking. Those who are opposed to liquor control affirm that secret drinking has taken place largely. Obviously if this drinking has been really "secret" they cannot prove what they say, and no one who contradicts them can prove the reverse. The probability, however, is that the evil has been grossly exaggerated, but this is not to say that it may not exist. For the time being the country is acquiescing in liquor control of the pattern laid down as a war measure, but the day will come when such control, like all other war measures, will be questioned as an advisable procedure when the country is at peace. A strong temperance party will press for the maintenance of existing restrictions and possibly for their reinforcement. Those who, like the famous Archbishop Magee of York, "prefer to see England free than England sober" will demand the abolition of the regulations and the Government will have to find the just course to be pursued, where parties cannot be pleased. There is one thing that should be done and done quickly which would please all people, and that is public house management should be reformed from top to toe. Many localities offer too great facilities for the purchase of drink. The worst public houses, those, by the way, which have flourished most under the old régime should be condemned in favor of the better-class inns which should be required to erect themselves into more agreeable places of refreshment where other than alcoholic beverages could be obtained and more family atmosphere found. The figure to be paid as compensation for the destruction of unworthy public houses is nowhere nearly so frightening as many think. The large majority of public houses in the country are the property of the brewer, and the business of the brewers would be actually more profitable if the conditions of the drink trade were restricted and cut-throat competition were abolished. The brewers know that, and have actually thriven during the war and under the restrictions. It is a little curious that medical men should appear to be so apathetic to a question of such enormous importance, but as yet medical evidence in both have made no appearance, tho demobilization proceeds apace. The best argument that could be used by medical men in support of the maintenance of restrictions is that alcohol and venereal disease always go hand-in-hand, and that demobilization is certainly going to be attended by grave threats of venereal prevalence, even tho sailors and soldiers obviously infected are kept with the colors until they possess a clean bill of health.



Physical Therapy

Under the Editorial Direction of Albert C. Geyser, M. D., New York.

IMPULSE CONDUCTION THRU POLARIZATION.

There is no longer any doubt about the manner of conduction of stimuli thru nerves. The whole process may be summed up in the one expression of "electro-chemical-polarization."

What is Polarization?—The ultimate of everything is energy-force. An atom of hydrogen is supposed to be made up to one thousand smaller bodies, each of which carries electric charges. Those carrying positive charges are termed ions, while those carrying negative charges are termed corpuscles. To gain some conception of the composition of an atom of hydrogen, let us compare the same to a molecule of water. The chemical equation for water is H₂O. In this instance the atom oxygen is bivalent. When therefore the valency of the oxygen is satisfied with two atoms of hydrogen—H-O-H—we have represented one molecule of water or H₂O. Since our knowledge of ions and corpuscles is more or less speculative we can only gain an idea by a crude comparison. It has been calculated that each atom of hydrogen is composed of about seven hundred ions and about three hundred corpuscles. In other words, when we have in close association seven hundred positive charges and three hundred negative charges, we represent one atom of hydrogen. The positively charged ion attracts as many negatively charged corpuscles as may be necessary for its saturation. Every ion and corpuscle therefore possesses a certain polarity. When these polarities are turned in their proper or normal direction for attraction, there is a state of equilibrium. When some force or stimulus exerts greater influence upon either the positive or the negative charges, greater than their mutual attraction, the equilibrium becomes disturbed; stress or strain in the opposite direction is manifested. When a spirally wound steel spring is compressed

there is strain in the entire length of the spiral. This strain or stress, the attempt to return to a state of equilibrium, may be utilized to perform labor.

So with a nerve, each smaller body in the chemical constituent of the nerve cell carries either a positive or a negative charge. When in the case of a motor nerve a cerebral impulse turns the poles of the ions, there is a stress or strain set up which, if propagated from ion to ion, from atom to atom, from molecule to molecule until it reaches the end organ, there this stress is converted into labor or a muscular contraction. An electric current, possessing greater affinity than the normal polar force of the nerve ions to each other, is capable of disarranging their polarity for the time being. When these actions and reactions of ionic polar activity are summed up into one expression, they may be designated as "electro-chemical-polarization."

The axis cylinder of a nerve is the only really and specifically active part in the transmission of impulses. At this time the chemical composition of nerve cells is as yet totally unknown. When examined under the microscope it gives the xantho-protoplasmic character. We may conclude from this that there is a generic analogy between the chemical composition of the active substance of a muscle and that of a nerve. We may conjecture that the transmission of excitation along the nerve fibre is accompanied by chemical changes, similar to those which take place in the muscle fibre. Some of these changes, like polarization, are only temporary, while metabolic changes are permanent. The temporary changes are the result of polarization, while the permanent changes are the result of anabolic (building up) and catabolic (tearing down) changes consequent upon the performance of some physiologic function.

When we compare the rate of metabolism between the gray matter and the protoplasmic prolongation of the nerve cell, the axis cylinder, we must come to the conclusion that the rate of nerve metabolism is very much slower than that of the gray matter, because the entire gray matter of the brain and spinal chord is irrigated by a rich network of blood capillaries, while the vascularization of the nerve is only slightly developed. A better argument may be found in the fact that the nerve, unlike the nerve

center, is practically inexhaustible even when thrown in a state of activity for hours, it shows no visible signs of fatigue. We may well compare the axis cylinder to a wire leading from an electric battery to a bell. The changes which take place in the battery may be considerable, the bell may even be worn out, yet the conducting wire be practically immune from wear as a result of performing its function of conduction.

It seems impossible to doubt that the metabolism is comparatively very low in the nerve fibre, for even after strong and persistent stimulation the power, as well as the rate of conductivity, remains the same, which evidently means that the work which the nerve has to perform is inconsiderable. The really important parts of the nervous mechanism are located at either extremity of the nerve fibre, the gray matter at the central and the end organ at the peripheral end.

When an excitation is propagated from the periphery to the center, as in sensory nerves, or when it travels from the center to the periphery as in motor nerves, the nerve only needs to conduct a slight impulse, a tiny spark, to the end organ with which it is connected in order to effect a vigorous process and a marked explosion of energy. This is owing to the great power of creating stimulus at the sending end and interpreting the same at the receiving end. Yet, however slight the metabolic changes may be, the process of excitation conduction and polarization must involve some consumption of energy. The products of chemical dissociation and the correlative development of heat are not demonstrable even after strong and protracted stimulation. We are warranted in concluding from this that the chemical dissociation is rapidly compensated by a process of restitution. It may well be assumed that the restitution of the chemical substances which have, of necessity, been altered by excitation in any part of the nerve is accomplished instantaneously at the expense of the next part, and that upon this, the whole process of propagation of the excitatory impulse depends.

Electrical polarization of the substance of the axis cylinder takes place whenever an electric current traverses such tissue. It must be assumed that ordinarily the poles of the molecules are arranged in series to each other, there is in other words saturation. A

cerebral impulse, an external sensory stimulus or an electric current, changes momentarily the normal arrangement.

When polarization is produced in a Leyden jar, a certain stress or tension is set up in the dielectric, the glass itself, owing to the change in the grouping of the electrons. In this instance, the metal on the outside and the metal or other capacity on the inside merely act as the two end organs of a nerve. Since the outside charge is of opposite polarity to the inside charge, an attempt is thereby made at equalization. The moment that equilibrium is re-established, the glass loses its stress and the normal arrangement of its molecules is again manifest.

A similar energy of stress is set up between cerebral activity and an end organ or *vice versa*. It is this energy of stress, which is conducted from molecule to molecule in the nerve, that finally ends in an explosion with the result of a muscular contraction.

Rate of Conduction Speed.—The velocity of transmission of the excitation or active state of a nerve may be summarized as follows:

1. In the frog the mean velocity of nerve vibration, the active or excitable state of the nerve, is from 20 to 26 m. about 60 to 75 feet per second.

2. In warm-blooded animals this velocity is increased from 30 to 40 m. about 90 to 112 feet per second.

3. It varies with a number of factors, particularly with the temperature of the part at the time of testing. This is especially noticeable if the parts to be tested have just been heated by the passage of a high frequency current (diathermia).

4. It is not identical in every part of the nerve.

From these facts we derive the important conclusion that the internal excitatory process, or active state of the nerve, is transmitted at a rate that is comparatively speaking so low that it must undoubtedly consist of a chemico-physical change of the living substance of the axis cylinder, propagated by contiguity from one part to the next.

Since it is impossible to pass an electric current thru a compound substance without causing electrolysis, it follows that when such currents are momentarily caused to traverse a neuron, a chemical change takes place, which is to all intents and purposes,

either identical with or at least similar to the normal physico-chemical process of normal excitation.

It is further apparent, that since an electric discharge travels at the rate of about 186,000 miles per second, that the resulting response of the normal nerve and muscle, if at all, must be lightning-like; at least much faster than the normal nerve excitation and its response.

The term stimulus, as applied to nerve, covers every agent capable of translating its excitability into action, as directly expressed in the external sign of the current of action, by which the physical change in the nerve is manifested. The indirect subjective proof of nerve excitation is sensation, when the stimulus acts upon our sense organs; consciousness of the voluntary impulse, when it proceeds from the higher centers. The indirect, objective proof is a muscular contraction, when the stimulus acts upon a motor nerve; a reflex motor contraction, when it acts upon a sensory nerve. In most of the work done upon the nerve, the reaction of the muscle has been taken as the index of activity, so that the results for the most part apply only to motor nerves.

We must distinguish between natural and artificial nerve stimuli. Nerve, like muscle, is excitable at every point of its course by a great number of stimulating agents of varying character, chemical, thermal, mechanical and electrical. Normally, however, sensory nerves and afferent nerves in general are always excited from the sense organs with which their peripheral termination is in relation; motor nerves and efferent nerves in general are always excited from the central organs from which they take origin.

It is due to the lack of appreciation of this unvarying law that so many errors creep into the practice of electrotherapy. In cases of paralysis following anterior poliomyelitis, the excitation does not generate from the anterior gray horn cells, because they are either injured or even totally destroyed, hence the flaccid paralysis of the limbs. The axis cylinder issuing from such an injured trophic center may be excitable throughout the entire length of its course by electric stimuli, but this can in no way be considered a physiologic substitute, altho a muscular contraction does occur with

each application of the current. On the contrary, the oftener such muscular contractions are compelled to manifest themselves, the sooner will the end organ in the muscle wear out. The reaction of degeneration cannot be prevented anyway, but it need not be hurried by the useless application of stimuli to a nerve which has been cut off from its trophic center.

It is quite different when the paralysis is the result of cerebral apoplexy. The muscle in such cases does not contract because cerebral or central stimuli are lacking; hence the electric stimulation in any part of the motor nerve not only produces the usual muscular contraction but, maintains the tone and the bulk of the muscle, because as the muscle functionates, the trophic center, reflexly, takes part in this action and so is stimulated to perform its function, that of nutrition.

The peripheral organ of the sensory nerves is normally excited exclusively by external stimuli of a definite character, which are therefore known as specific stimuli. The nerve endings of sense organs are so constituted that they are highly susceptible to the influence of stimuli which would be powerless to excite the nerves themselves at the different points of their course.

For this reason the natural stimuli for the respective sense organs are also termed adequate stimuli; they are adapted to the specific constitution of the sensory nerve endings which they stimulate. The adequate stimulus for the optic nerve is light, which alone can excite retinal nerve endings; the adequate stimulus for the auditory nerve is sound, which alone can excite the nerve endings of the organ of Corti, etc.

Motor nerves, again, are normally excited by specific stimuli, produced by the reflex or automatic activity of the ganglion cells of the central organ from which they originate, and on which they are morphologically and functionally dependent.

The fact that every nerve is excitable only at one of its ends, peripheral or central, and only to a definite kind of stimulus, is one of the most admirable adaptations of the animal organization, and prevents that chaotic disorder in the activity of the whole system which would occur if the nerves were excitable at every point of their course by different external and internal factors,

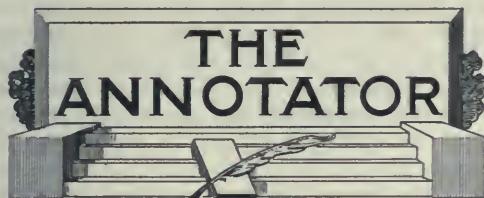
e. g., the tissue fluids by which they are irrigated, and which regulate their metabolism.

Altho under physiologic condition, excitations never occur along the course of a nerve, it is, as we have seen, excitable at any point, when acted on by artificial stimuli of sufficient strength. Its excitability is indicated by the minimal intensity of the effective stimulus, when the latter can be measured with sufficient accuracy. Speaking generally, we may say that the minimal intensity of effective stimulation is less for nerve than for muscle, which shows that nervous excitability is greater than muscular excitability, and that the two forms of excitability have a different organic substrate.

bypaths of prohibition. It is true that there is a considerable balance of good in the account of prohibition, but at the same time it is not to be denied that there is always danger of a deficit of evil which must always be borne in mind—a deficit which has been too often ignored by zealots who could see but one side of the question. With prohibition an accomplished fact, the obligation to urge caution and point the way to safety thru the reefs and shoals that have beset many a worthy movement increases.

The theory that prohibition and social unrest are closely related, tho extremely interesting, is purely an academic one; but there is a much more vital and seemingly inevitable accompaniment of prohibition—the increase in the sale of drugs which usually takes place whenever a locality goes dry. It is a commonplace, certainly it is well known to physicians, that in cities and states where liquor is prohibited, the sale of preparations containing alcohol and other stimulants invariably mounts to proportions that cannot be justified on any possible ground. The amount of alcohol consumed in this indirect manner in some cases has almost proved equal to the amount disposed of under a normal wet regime. Yet this is by no means the most serious aspect of the consequences of prohibition. Certainly it is not a situation which the authorities cannot remedy with wise legislation. But the enormous increase in the public consumption of drugs where prohibition is in force has never been adequately understood or combated by officials and, if we call attention to the serious situation here now that national prohibition seems about to be enforced, it is in the hope that the authorities will try to meet this situation promptly and satisfactorily, and avoid the pitfalls that beset a dry regime. It would be tragic to court the destruction of one bad habit by encouraging the cultivation of a worse one.

Despite the well-intentioned skepticism of some persons regarding the evil accompaniments of prohibition as regards the increase in the consumption of drugs, there is ample evidence in support of the contention that the sale of drugs increases in proportion to the decrease in the sale of alcoholic stimulants. To understand this fact, one must frankly acknowledge the dependence of the average human being (the great



Prohibition and the Drug Danger.—It is a very simple kind of mind which can answer any problem with an emphatic "Yes" or an emphatic "No." As often as not, both answers will serve with equal truth, for there are few questions with evidence in their favor so irrefutable that much could not be said one way or the other with equal conviction. In fact, Sir Roger's favorite evasion, "there is much to be said on either side," is really a luminous comment on the dual nature of every problem. The problem of prohibition is in no sense an exception. In our last issue we called attention to the danger of unrest that has been associated in many minds with the advent of prohibition. Since then, Federal prohibition has become a *fait accompli*. Thirty-six states have signed the pledge and, unless the unforeseen occurs, the nation will be bone dry by January, 1920. If we had an axe to grind, all further discussion of the problem of prohibition would be dropped forthwith as no longer of any consequence; but the purpose of AMERICAN MEDICINE in dealing with this vital question has been such that the enforcement of the amendment only serves to inspire a greater effort to plant danger signs along the various and tortuous

majority of human beings, in fact) on some form of stimulant or other. And under the head of stimulants come not only alcohol, but tea, coffee, tobacco, opium, cocaine, quinine and the innumerable table and medicinal preparations. The severe strain which modern civilization imposes has made the use of these stimulants universal and almost indispensable, and to remove one of them from the list makes merely inevitable that the other (perhaps the more dangerous ones) will be resorted to. That this is the case has been amply proved by investigators. A very exhaustive investigation was made by the late Dr. A. P. Grinnell of Burlington, Vermont, some years ago, in Vermont while it was a prohibition state. The circumstances of the inquiry were beset with many difficulties. Dr. Grinnell invited information from drug stores and general stores thruout the state, but many proprietors, fearing a trap that would involve them in legal prosecution, refused to give any information. Others were frank and helpful.

The data Dr. Grinnell thus obtained were startling even to that level-headed investigator. In one town, so small that it appears only on the largest maps, there was sold every month $3\frac{1}{2}$ lbs. of gum opium, 6 oz. morphine, 5 pints of paregoric, 5 pints of laudanum, and 3 oz. of powdered quinine. In other towns where there were two drug stores (one of which refused to give any information) the drug store that responded reported the sale of 3 lbs. of opium, one gallon of paregoric, three quarters of a gallon of laudanum, 5 oz. powdered quinine and one thousand 2 grain quinine pills. In the words of Dr. Grinnell: "In the regular drug stores, and in 160 of the 172 general stores in the State of Vermont, they sell every month 3,300,000 doses of opium, *besides* what they dispense in patent medicines and *besides* what the doctors dispense, which gives one and one-half doses of opium to every man and woman in the State of Vermont above the age of twenty-one years every day in the year. By dose I mean one grain of opium, $\frac{1}{8}$ grain of morphine, $\frac{1}{2}$ ounce paregoric and twenty drops of laudanum. And the amount consumed would average a half-dose to every man, woman and child (without age qualification) in the State of Vermont every day in the year."

Further the report reads: "In 71 towns of Vermont, being the only ones having legally authorized liquor agencies, there was sold during the last fiscal year \$251,622.99 worth of liquor, or what was equivalent to \$1.38 worth of liquor for every man, woman and child living in these 71 towns. * * * A little further calculation from the above figures will show that there was enough liquor sold in the 71 towns mentioned to supply every man, woman and child in the whole state with \$.73 worth of liquor for 'medicinal, mechanical or chemical purposes.' In some towns in the list the 'medicinal' needs for liquor were very large, as shown by the fact that nearly four dollars' worth was consumed per capita, while the average runs between this and one dollar, the majority being above two dollars. All in all, over one quarter of a million dollars' worth of liquor was legally required by a population of 182,356 people for medicinal purposes, and the health reports show no epidemic or undue prevalence of disease!"

These facts, of indisputable accuracy, speak for themselves. On the one hand, they show a regrettable diversion of the frank and open consumption of liquor to a sly, underhand manner of obtaining it. On the other hand, they show an inevitable tendency to replace one stimulant by another, often of a more dangerous nature. In one case, the purposes of prohibition are defeated, with the same results; in the other case, the objects of prohibition are defeated, with infinitely worse consequences. Those who have undertaken the responsibility of bringing about prohibition must bear these facts in mind. Their obligation does not end with the legalization of the measure they have advocated. It really begins at this point, and, unless they can bring about the benefits of prohibition without incurring the many evil consequences with which prohibition has been beset in the past, their achievement will assume the nature of a successful calamity. In the words of the unlucky general: "God help me, another such success and I am ruined!"

The Failure of the Human Element.—

The recent tragic railroad wreck at Batavia is so full of helpful lessons, so emphatically

demonstrative of one essential lesson that has never been learned yet, that one cannot resist the temptation to go out of one's way to comment upon it. The newspaper report of the tragedy is extremely illuminating: "Batavia, N. Y., Jan. 12.—Twenty-one sleeping passengers were crushed to death when the New York Central's Southwestern Limited crushed into the rear Pullmans of the Wolverine Limited at South Byron, six miles east of Batavia, at 3:36 o'clock this morning. Several were injured, three of them seriously. The cause of the wreck is unexplained. Railroad officials declare that the signals were set against Train No. 11, the Southwestern, and that in addition a flagman had gone back with a lighted fuse to halt the onrushing train. John Friedley of Buffalo, the engineer on the Southwestern, declares that the signals were clear, and that the first he saw of the flagman's warning light was when he was but a few car lengths from the Wolverine."

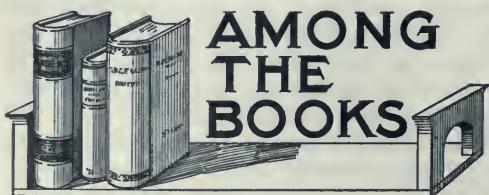
Again we have the contrast between what may be the invariable faultlessness of mechanical devices for the prevention of mishaps and the not infrequent faultiness of the human device. It is unimportant which is the case in the present instance, but experience has shown that nine times out of ten it is the mechanical device which remains perfect and the human device which is a failure. In the vast majority of the railroad wrecks of the past, it is the human element which has failed; and when, as is all too often the case, it has been proved that the signals all worked properly and that it was the human element which was to blame, both the public and the officials throw up their hands, cast their eyes heavenward and exclaim: "Well, what can one do? You can't count on human nature and you can't do anything to improve it." And with that they feel they have dismissed the case adequately. The railroad officials particularly are not troubled with bad consciences. For years they have spent an inordinate amount of money on safety devices, they have left nothing undone to obtain mechanical perfection in the various safeguards for the prevention of accidents, and they have actually attained the desired mechanical perfection. Yet accidents occur, and they occur altogether too frequently. The disposition everywhere is to feel that so long as human nature is so defective noth-

ing can be done, and such a conclusion takes it for granted that human nature cannot be corrected or improved. It has always been the unreliable element and always will remain so. There can be no quarrel with such a conclusion, and one can hardly censure railroad officials for spending so much effort on the improvement of mechanical devices and so little effort on the improvement of the human element. One cannot change human nature. The most conscientious engineer will have a momentary lapse of vigilance, a lapse so common to every human brain—and then it is too late. Another wreck has been added to the list.

But it is one thing to try to improve human nature, and it is another to attempt to safeguard it; the failure of the railroads lies in the fact that they have provided every safeguard for the proper working of signals, switches and fuses, but they have provided insufficient safeguards for the proper working of the human element. All the effort has been on the side of strength, and there has been too little effort on the side of weakness. Consider the problem of the race-track. Why is there always more than a single individual in the judges' stand? At the race-track, it is the human element which is depended upon for a precise verdict and, knowing the fallibility of this element, tradition has always provided for three or more judges as a safeguard against the tendency toward human error. By multiplying the units of human element involved, the margin of error is decreased. And in the case of the race-track, the judges are not diverted by any consideration other than the problem of the race. There is no division of interest, and yet allowance is made for error. In the locomotive cab, the chances of error are increased considerably by a division of interest. The one man on whom the safety of the passengers depends must not only give his attention to signals but he must give no small amount of thought to the actual operation of the locomotive. His responsibility is divided. Of course, he has from time to time the assistance of his stoker, but the stoker's interest is also divided. Thus you have two men, both with responsibility divided between two jobs, burdened with a serious care which should be absolutely undivided by any other interest; and the consequence is—a wreck. If on the race-track,

where interest is concentrated on a single responsibility, discount is made for the liability of error, certainly the liability to err in the locomotive cab is greatly increased. And what safeguards are provided against this tendency to diversion of interest? Practically none.

The conclusion is obvious, and that the railroads have missed this conclusion is very strange. There should be a third man in every cab, or somewhere among the crew of a train, whose sole interest should be in the careful observation of signals and whose interest must not be divided by any other responsibility. In such a measure lies the only solution to our too frequent train wrecks, and until such a step is taken the much lamented weakness of the human element will remain a source of the greatest danger to railroad travelers. The greatest attention to the mechanical device, but more attention to the human device—that is the answer.



Civic Biology.—It would not be unnatural for physicians interested in the welfare of their children to make use of a textbook presenting biology in its civic aspects. Among the various textbooks which have been presented few have a loftier concept of civic biology than that written by Hodge and Dawson (*Civic Biology*, Ginn and Company). The recognition of the fact that the progress of civilization is dependent upon cooperation for the common good is not as widespread as it might be. Civic Biology aims to make clear the inter-relation of many of the forces of nature, many of which cannot be counteracted save by the harmonious action of communities. Obviously, communal activity becomes possible only when an intelligent citizenry grasps the importance of the biologic problem and is cognizant of the methods of attacking the problems most successfully.

Birds, insects, spiders, rats, fungi, bacteria, mollusks, crustacea, fish, amphibia, reptiles and mammals are not merely isolated families or species only of interest to the naturalist. They are very essential factors in the health and welfare of the human family, and an understanding of the problems in which they are involved is essential that communal health may be advanced. In explanation of these relations Hodge and Dawson have written a book which

commends itself for home use as well as a textbook for secondary educational institutions.

Materia Medica.—Drugs, generally speaking, are not so largely employed as was formerly the case, due somewhat to their unsatisfactory results and in no small degree to lack of knowledge of their true therapeutic properties. It is both instructive and curious to note the very large number of drugs which once used to be considered valuable, but which have fallen into disrepute, or even been relegated to "the scrap heap." In many instances these have first been carefully, scientifically and clinically weighed in the balance, and found wanting. On the other hand, not a few others which have been esteemed lightly have been discovered to possess great remedial merits as they have been studied more carefully and comprehensively. Consequently, it may be stated that the ultimate test of a remedy lies in a demonstration of its clinical efficiency, rather than in the outcome of laboratory experiments, valuable and important as these are in their proper place.

Dr. Walter Bastedo, in his splendid work on *Materia Medica, Pharmacology and Therapeutics*, Second Edition (W. B. Saunders Company, Philadelphia, 1918) deals exhaustively with this large subject of remedies and their application to disease. The ruling object of the book is to emphasize the importance of research, both in the laboratory and at the bedside, and to point out any discrepancy between the value of a remedy as established by such research and its supposed value in therapeutics. The author has succeeded admirably in his endeavor and has distinguished between the values of the various remedies with rare acumen. Dr. Bastedo is an optimist regarding the future of therapeutics and he voices his faith in the following striking words: "I believe that as the outcome of critical laboratory research and the adoption of laboratory methods in clinical research are properly appreciated, we are at the dawn of a new era of simple and practical therapeutics, an era in which knowledge will supplant credulity on the one hand, and skepticism on the other, and in which fewer drugs will be used but better treatment given."

Especial attention has been paid to the therapeutic uses of digitalis and the author has drawn his conception of its action as much from his own recent clinical studies and from the recent investigations of others, as from those of the pharmacologic laboratory. The criticism may be made that an undue amount of space has been devoted to digitalis but when the value and the wide employment of the drug in heart affections is borne in mind, it will be allowed that this criticism is devoid of force. A feature of the chapter on digitalis is the really excellent diagrams showing the action of digitalis upon certain heart conditions.

The section dealing with opium and its derivatives is unusually complete and contains a great fund of valuable information. Among what may be termed the curiosities of morphinism is the fact reported by McGuire and Lich-

tenstein, and now emphasized by Bastedo, that in women habitués, a quite remarkable growth of hair is often observed. The section on anesthesia is likewise worthy of high commendation. In fact, the entire work has been excellently conceived and the conception has been as excellently put into execution. This, the second edition, has been thoroly revised and brought up to date, and into conformity with the ninth revision of the U. S. Pharmacopeia. Several new articles have been introduced, among others, those on magnesium sulphate, oil of chenopodium, and the Dakin-Carrel antiseptic treatment for wounds, being especially noteworthy.

Dr. Bastedo has given the profession a work which cannot but prove of the greatest practical value to medical practitioners everywhere, who wish to apply their remedial measures with a definite and comprehensive knowledge of their action and effects.

Medical Practice.—A Practice of Medicine that has gone thru thirteen editions needs little eulogy. The fact speaks for itself and the only thing to say concerning a work with such a record is to notice the changes and revisions which have been made. The *Practice of Medicine* by Dr. James M. Anders (W. B. Saunders Company, 1917, thirteenth edition) has been thoroly revised with the assistance of Dr. John H. Musser, Jr., while the section on Nervous Diseases has been practically rewritten by Dr. Charles S. Potts. Much new matter has been added on treatment of tetanus, acidosis, chylothorax, etiology of aortic incompetency, treatment of asthma, diverticulitis, functional tests of hepatic insufficiency, Gaucher's disease, estimation of renal function, anaphylaxis, food intoxication, the pneumococcic infections, focal sepsis, rat-bite fever, febris Wolhynica and pyorrhea alveolaris. Other subjects have been rewritten, others have been classified in accordance with the most modern and approved teaching. On the other hand, the descriptions of yet other complaints, of which the incidence has materially declined, have been abridged. Diagnostic tables have been added and the entire work has been brought into line with the most recent concepts of prevention and treatment. The book is adequately illustrated and from all points of view is a splendid exponent of medical knowledge told in clear and concise language. Anders' *Practice of Medicine* is one of the great contributions to American medical literature that has helped to place American medicine on its present plane.

The Third Great Plague.—Tuberculosis is the first great plague, because it is the longest known and the best understood by the community at large. Dr. John H. Stokes in his work, *The Third Great Plague* (W. B. Saunders Company, 1917), terms cancer, the second great modern plague and syphilis the third great plague. Undoubtedly, there will be difference of opinion as to tuberculosis being the first of

the great modern plagues, but many would place bubonic plague second of the list. Perhaps, however, Dr. Stokes refers particularly to communicable diseases occurring among white men, and if this be his meaning, then cancer may be put down as second on the list. Moreover, Dr. Stokes has reference to diseases which undermine, slowly but surely, the very foundation of life. Under this category cancer will naturally stand close to the front.

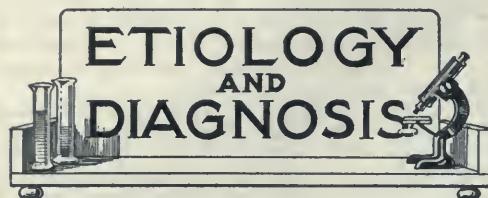
With this preamble, Dr. Stokes' illuminating book points out what is perfectly true—that syphilis is still shrouded in obscurity, entrenched behind a barrier of silence, and armed by our own ignorance and false shame, with a thousand times its actual power to destroy. It is likewise true—and it is a lamentable commentary upon the prudishness of civilized people—that despite the fact that it is known how to prevent syphilis, and in a large proportion of cases how to treat it successfully when contracted, the general public prefer to remain ignorant on the matter, or refuse to learn the truth.

Dr. Stokes also lays emphasis upon a point which is oftentimes passed over, to wit, that the power for evil of tuberculosis has been crippled not so much by any marvelous discoveries of its cause and the possibility of its cure, as by the spread of knowledge far and wide of rational means of prevention and treatment. The author is sufficiently optimistic to believe that cancer will be obliterated by similar widespread propaganda. His slogan is "make a disease a household word and its power is gone." Education of the masses with respect to the most effectual modes of preventing and treating syphilis is the only method by which the plague may be stayed. Dr. Stokes' book is a step in this direction. It puts accepted facts concerning syphilis in such a form that they will the more readily become matters of common knowledge.

This book, therefore, should be widely read and in this event would serve as an important part of a campaign of public education regarding the third of the great plagues.

The author, commenting upon the method of personal prophylaxis devised and developed by Metchnikoff and Knox of an ointment containing a mercurial salt, to be applied within a few hours after intercourse, claims that if intelligently applied, it is one of the important weapons for the extinction of syphilis at our command at the present day. At the same time he thinks that it may well be doubted whether the indiscriminate placing of this ointment in the hands of anybody and everybody would not work as much harm as good, thru ignorant and careless use. This very matter is being hotly debated now in Great Britain, for altho this form of personal prophylaxis has met with striking success in the British army in Egypt, and is largely employed in Italy and in other parts of Europe, there is a strong prejudice against its general adoption among a large section of the British public. In Great Britain, however, the opposition to its use is based on moral scruples. Under existing circumstances,

Dr. Stokes' book should assist in awakening a lethargic and indifferent population, not only to the sinister menace of syphilis, but also to the fact that it is preventable and curable.



ETIOLOGY AND DIAGNOSIS

Diagnosis of Peptic Ulcer.—From studies on many cases of peptic ulcer in which X-ray examinations were made, Baetjer, in the *Johns Hopkins Bulletin* for August, 1918, states that we are justified in drawing the following conclusions:

1. The X-ray offers most valuable assistance to the diagnosis of peptic ulcer and altho this method is not yet sufficiently well developed to be relied upon alone without entering into the clinical aspects of the disease, it is of the greatest diagnostic help in obscure cases. Positive X-ray findings are noted in about 84 per cent. of cases of peptic ulcers and in 79 per cent. of cases operated upon.

2. Duodenal ulcer shows excessive hypermotility of the stomach with rapid evacuation of the contents, so that the greater portion is extruded within the first half hour; there is hypermotility of the duodenum with formation, usually of a deformity which remains fixed in all of the examinations.

3. The diagnosis of gastric ulcer is dependent upon two conditions, namely, the functioning of the stomach and the finding of the filling defect. It is only when the filling defect is situated along the anterior surface of the stomach and along the anterior surface of the lesser and greater curvatures that it can be demonstrated. On the other hand, it matters not what the situation of the ulcer is, the functions of the stomach are materially affected. We have in this condition an excessive irritation from the ulcer, with consequent hypermotility and a spastic condition of the pylorus, so that for the time there is practically no expulsion of bismuth. It is only when the spasticity relaxes that a portion of the bismuth is expelled. In gastric ulcer, wherever its situation, we can always look for a certain amount of retention of contents. There is always a more or less marked hour-glass formation. According to our observations the functional signs are often as important as the presence of the filling defect in arriving at definite conclusions, inasmuch as in 8 per cent. of our cases, altho there were no defects found, the functional changes pointed definitely to ulcer.

4. The greatest difficulties arise in the diagnosis of complicated cases; that is, when adhesions are present. These so frequently mask the usual findings that it is often impossible to determine whether there is really an ulcer of

the stomach at hand or a lesion of some other organ. When the ulcer is situated at or near the pylorus, signs of partial obstruction frequently aid in establishing the diagnosis.

5. The X-ray affords an almost absolute means of differentiating between gastric and duodenal ulcer.

6. By means of the X-ray examination we can generally rule out the presence of ulcer.

7. We can approximately determine the degree of healing as well as recurrence of an ulcer which cannot be as certainly determined in any other way.

8. One can obtain sufficient evidence as to the extent and induration of the ulcer and degree of obstruction to guide us, in a measure, as to the necessity of surgical intervention.

The Early Diagnosis of Pulmonary Tuberculosis.—Early diagnosis is the essential factor in the treatment of pulmonary tuberculosis, but there is still a tendency to attach too great weight to the physical signs alone, claims an editorial writer in the *London Lancet* (Oct. 12, 1918). We may recall two of the aphorisms of the late Dr. Samuel Gee: "Therapeutics must begin before physical signs have developed; for if you wait for physical signs you wait too long"; and "In any case of phthisis the disease is more extensive than the physical signs would seem to indicate." Conversely, extensive physical signs may be left after arrest of the disease and may be consistent with health and freedom from all activity of the old pulmonary lesions. It is necessary in every case, before making a diagnosis or advising treatment, to review the history, the symptoms, the physical signs, the general condition of the patient, and sometimes his reaction to varying conditions, especially where there is no sputum for examination. We publish in our present issue an admirably suggestive article on this question by Mr. Alfred Foster of Christchurch, New Zealand, emphasizing the importance of these considerations for the general practitioner, to whom, in a large proportion of cases, the opportunity for the early diagnosis of pulmonary tuberculosis is afforded. If the doctor suspects the onset of phthisis before the actual development of unequivocal physical signs and takes steps to establish the diagnosis by a careful review of all the information available, the patient may be enabled to secure treatment under the most favorable conditions. Mr. Foster was impressed by the attacks which occur in sanatorium patients, usually induced by some indiscretion, such as over-exertion. These he describes as associated with loss of appetite, feeling seedy all over, increased cough and with more or less rise of temperature. Such attacks are sometimes referred to as due to autoinoculation and are doubtless the result of the action of the products of the tubercle bacillus. Mr. Foster classifies these symptoms as follows: (1) cough and expectoration, (2) loss of weight, (3) loss of appetite, and (4) rise of temperature. He urges that the concurrence of these conditions

should lead to a careful examination of the evidence in favor of pulmonary tuberculosis and in particular that a careful and continuous record of the temperature should be taken. Too often this association of symptoms is attributed to recurrent influenza, or to trivial catarrhal conditions and thus the opportunity for early diagnosis and treatment may be lost. Such evidences of autoinoculation, especially if continuous or repeated, should give point to slight and dubious signs or tend to a diagnosis even in the absence of signs. Attacks like this are commonly observed *within* sanatoriums while the patient is under treatment and Mr. Foster thinks their nature should be recognized as suggestive in patients *without* sanatoriums before a diagnosis is established.

Etiology of Multiple Osteoma of the Nasal Accessory Sinuses.—Culbert (*N. Y. State Jour. of Medicine*, Dec., 1918) in his article gives the following conclusions:

(a) In cases of osteoma of the nasal accessory cavities, there is in all probability an original fault or tendency, congenital in the individual.

(b) Such faults or tendencies, when not irritated to activity, often probably remain quiescent and never develop.

(c) Conditions likely to activate osteomatous growths are:

1. The great neoformative activity in the frontal regions during adolescence.

2. External traumatism.

3. Endogenous irritations: inflammations and infections of the nasal accessory cavities, i. e., the sequelae of grippe influenza and the whole range of naso-pharyngeal affections. These conditions are probably the most frequent cause of trouble.

4. Constitutional maladies, particularly syphilis and possibly other infectious diseases.

5. Above all, combinations of these different causes; of the effect of such combination, the literature furnishes many examples.

Theory of Acidosis.—In speaking of the theory of acidosis, in the *Mississippi Valley Medical Journal* for February, Shimer makes the following summary:

1. Acidity of the blood is due to the presence of fixed and volatile acids.

2. One of the volatile acids is CO₂ in solution.

3. One of the fixed acids is lactic.

4. In taking the H ion concentration of the blood it is necessary to know the CO₂ tension of the alveolar air. If a blood tested in this manner has an increased H ion concentration and a high CO₂ tension, the increased H ion concentration is due to a volatile acid; if the CO₂ tension is low, the acid is a fixed one. If the H ion concentration is normal and CO₂ alveolar tension high, there is a lowered excretion of CO₂.

5. Acidosis is a comparative decrease in the

alkalinity of the blood and expresses the inability of the body cells to neutralize the usual amount of acids formed during metabolism.



Treatment of Vertigo.—Empty the bowels and prevent them from filling up, Young (*Med. Summary*, Dec., 1918) states; first, by administering full doses of Epsom salts to effect; then, use mineral oil enough to cause a daily action. Repeat the saline purge every two or three weeks, and give from five to ten drops of spirits of turpentine twice a day, one week, and gum camphor the next week. One grain three times a day, and let up for a week or ten days. These remedies stimulate the spinal cord, and brain, especially the cerebellum, oblongata and pons.

The Dietetic Treatment of Liver Diseases.—Eustis, in the *New Orleans Med. and Surg. Jour.* for August, 1918, states that the diet in hepatic diseases should consist essentially of an abundance of carbohydrates, and while transient glycosuria may be produced, this soon disappears as the liver cells regenerate. The diet must be selected according to the gastric function of the patient and, if vomiting exists, glucose by drip protoclysis or hypodermoclysis must be resorted to. Where there is little disturbance of gastric function the following diet list should be selected from, and the patient maintained on this diet as long as there is an intestinal toxemia:

DIET LIST FOR PATIENTS WITH DEFECTIVE LIVER FUNCTION.

MAY TAKE.

Soups: All clear soups, vegetable broths, purée of corn, beans, peas, asparagus, spinach, celery, onions, potatoes and tomatoes.

Farinaceous: Oatmeal, rice, sago, hominy, grits, cracked wheat, whole wheat bread or biscuits, corn, rye and Graham bread, rolls, dry and buttered toast, crackers, muffins, waffles, batter cakes, wafers, grape nuts, macaroni, noodles and spaghetti.

Vegetables: Potatoes (sweet and Irish), green peas, stringbeans, beets, carrots, celery, spinach, artichokes, alligator pears, eggplants, lettuce and onions. All vegetables except cabbage, cauliflower and turnips.

Desserts: Rice and sago with a little cream and sugar, figs, raisins, nuts, and syrup, stewed fruit, preserves, jellies, jams, marmalades and gelatin; prunes, apples, and pears, either raw or cooked.

Drinks: Tea and coffee (with cream, but not milk), grape juice, orangeade, lemonade, limeade and Vichy, cocoa. An abundance of pure water, cold or hot.

MUST NOT TAKE.

Eggs: None.

Fish: None.

Meat, Game, or Poultry: None.

Veal, pork, goose, duck; salted, dry, potted or preserved fish or meat (except crisp bacon); oysters, crabs, salmon, lobster, shrimp, mackerel, eggs, turtle and ox-tail soup, gumbo, patties, mushrooms, mince pie, cabbage, cauliflower, turnips and cheese; alcohol.

Negative tests for urobilinogen and indican extending over a week indicate that either eggs, fish, or easily digestible meats may be taken in moderation, in the practice of Eustis this being limited to not oftener than once a day. It will be found that buttermilk to which lactose has been added is the best animal protein on which to start, but he cannot too strongly urge a constant control of the diet by frequent examinations of the urine.

Oil of Chenopodium in the Treatment of Amebic Dysentery.—Barnes and Cort in the *J. A. M. A.* (Aug. 3, 1918) conclude as follows:

1. Oil of chenopodium relieves promptly the clinical symptoms in many patients with chronic and subacute amebic dysentery.

2. Oil of chenopodium administered by mouth or by rectum possesses marked power as an amebicide, as is shown by the rapid disappearance of amebas from the stools, following its administration.

3. There is a tendency to relapse in some cases, but in their series this is not greater than with the use of emetine.

4. The oil of chenopodium may be safely administered, when combined with castor oil in a single dose.

The Vaccine Treatment of Coryza.—Attention is directed to the end-results of ordinary catarrhal inflammations of the nasal mucous membrane, especially when the attack is prolonged, and frequently repeated. In these cases the sinuses become involved and infection persists. Fifield (*Med. Record*, Mar 10, 1917) has found autogenous vaccines to be very beneficial under such conditions, and better than stock vaccines.

Patients who suffer from obstruction of the nasal cavities must first have these lesions relieved, before the vaccine treatment is applied.

The Prevention of Measles.—In *The Practitioner* for April, 1918, Milne gives this advice:

Prevention.—Every "contact" and every child that may become exposed to infection should receive ten drops of the best pure eucalyptus oil twice (or, better still, three times) a day, placed on the day shirt (front of chest) on ris-

ing, and at midday, and on the night shirt when retiring.

Treatment.—Three points should be noted:

A. Rubbing: Before being allowed to mix with other children the patient should have his first rubbing. The patient is rubbed all over (scalp included) with the best pure eucalyptus oil, twice a day for the first four days, then once a day for six more days—ten days in all.

B. Swabbing: The throat is to be gently swabbed with ten per cent. carbolic oil every four hours for three or four days. The swabbing should be carried out right between the fauces, and may be done by means of a mop of cotton or wool on the end of forceps.

C. Gauze Tent: In measles one of the chief sources of infection is probably the cough. A bed cradle, or other substitute, is put over the patient's head, and over the cradle is spread a layer of gauze, just thin enough for the patient to see thru. The gauze must cover the head and neck and must be sprayed with eucalyptus oil periodically, every four hours. This is continued until the cough ceases, or for ten days.

Treatment of Uncinariasis.—McCulloch (*So. Med. Jour.*) states that hookworm disease is one of the few diseases in which we fortunately have what may be called a specific treatment. Three drugs have this specific action: thymol, oil of chenopodium and betanaphthol, and of these chenopodium is the most efficacious, thymol stands second, and betanaphthol third.

Gonorrhea in the Female.—Edward E. Ziegelman (*Medical Sentinel*, Dec., 1917) claims that gonorrhea in women is one of the most difficult of diseases to cure, requiring unlimited perseverance and in many cases surgical skill and judgment on the part of the physician and the explicit confidence of the patient. A cure must be determined only on bacteriologic and serologic examination, not on amelioration of symptoms. He believes that in order to control this disease and obtain results it will be necessary that all infected women should be under civil jurisdiction, or subject to the same, and that, if necessary, public clinics with salaried attendants should be provided. It is useless to treat a female gonorrhoeic who persists in having intercourse with an infected man.

Flatfoot.—H. V. Salis (*Correspondenz-Blatt für Schweizer Aerzte*, Sept. 8, 1917) applies an adhesive plaster bandage over the front part of the foot and back of the toes, so as to force the middle metatarsal bones upward and hold them in the normal arch, after softening and removing the calluses from the foot. This is cut and laced along the dorsum of the foot, and also for a distance at the side near the ankle, so it can be removed easily. He says that mild cases of flatfoot can be cured by wearing this dressing some months, but in bad ones it has to be worn permanently.

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YEARLY
In Advance

Organized Medical Leadership.—At the Seventh Annual Congress of the National Safety Council, Dr. J. A. Cousins made the following statement, according to the *Monthly Labor Review* (November, 1918):

"There are two ways in which employees may be regarded, and only two: One as machines, the other as men. They are no longer content to be regarded as machines; they are going to insist, with ever-increasing firmness and decision, on being regarded not only as men, as fellowmen, but as fellow creators of the industries in which they toil. They are going to insist that a man who invests his life in a business, who puts his toil into it, is to be considered before the man who merely puts his money into it. From a physician's standpoint 'the 'human element' must not merely be recognized, it must be predominant,' and this is the only way to avoid unnecessary loss of time and unnecessary waste of energy and product."

The suggestion that the human element must be recognized as predominant might well be extended to other phases of medicine besides the industrial. The medical profession, as a whole, continues to be backward in accepting or approving the fundamental truths of preventive medicine which cluster about the human element in society.

No group of professional workers in the country is in a position to understand the human side of mankind as thoroughly as physicians but, nevertheless, the organized profession has failed to take leadership in promoting the social welfare of the individual.

It is a source of regret that medical societies as a rule are charged with being reactionary. The natural skepticism of medical men can hardly be regarded as a sufficient excuse for failing to lead in public health affairs.

Despite meetings constantly going on of county, state and national organizations and the growing literature appearing in medical journals, there are still very few evidences of the practical study of the great social problems manifested at the various meetings of medical men. In the large movements for the prevention of tuberculosis, the conservation of vision, the development of mental hygiene, the control of venereal diseases, the study and prevention of infant mortality, lay groups have been, with rare exceptions, the stimulating elements, the founders, the promoters and the agitators of all necessary reforms. In many instances medical societies have been forced thru public opinion to participate actively in public health campaigns. Many times it has been necessary to shame or to dragoon them into cooperative effort to advance the general welfare. This is a serious criticism of a group of the community which, because of training, education, and profession, should assume leadership in health matters. It is true that in the ranks of workers are found many distinguished physicians, but their efforts and endeavors have been personal, and not infrequently has

their support been given in spite of the opposition of a large proportion of their colleagues.

What great steps for the promotion of public health in the City of New York stand to the credit and the initiative of the large medical organizations of the City of New York? What is their record of accomplishment in formulating health programs and securing their adoption by the community? Has the Academy of Medicine, splendid organization as it is, for example, discharged its full obligations as part of the civic life of New York by inaugurating schemes for the improvement of public health? Wherein has the New York County Medical Society with all its influence, demonstrated its effective leadership in aiding this community to secure improved public health or social conditions? It is not to be denied that both organizations have at various times passed resolutions in support of policies projected by others. It is true that committees of these organizations have at various times appeared before public bodies in support of requests for appropriations or for the adoption of specific regulations. As individuals, many members have rendered faithful service in behalf of important public health movements. But have they, as representatives of organized medicine, actually undertaken to start any activities in the community and to urge them as a result of their organized knowledge and experience?

Singling out the organizations of New York City is not for the purpose of criticizing them any more than similar organizations thruout the United States. Organized medicine has not lived up to its responsibilities or obligations in proportion to its numbers or potential power. The much despised "social worker," "reformer," "up-

lifter" can point with pride to a series of accomplishments along health lines that far surpass the efforts of medical societies. Individual health commissioners, in numerous cities and states, with their various expert subordinates, have been more successful in promulgating health policies than medical societies, and not infrequently they have been obliged to fight for their ideas against the active opposition of medical organizations which have failed to recognize the human element in its public health relations.

Physicians frequently express themselves as resentful of the lack of consideration they receive at the hands of those endeavoring to secure hygienic reforms. If the medical profession, thru its organizations, were in the forefront of health movements and were less reticent in expressing their views and convictions, it would not be necessary for them to be consulted, but on the contrary they would be in the position of inviting the cooperation of those who, under present conditions, are accustomed to going ahead without consideration of the possible support to be secured from medical societies. As long as this latter state of affairs continues medical men cannot hope to win and hold the place in their respective communities to which their knowledge and training give them a right to aspire.

In the various reorganizations of society now going on as a result of the tremendous world upheavals, there is distinct need for medico-social leadership. Unless medical societies swerve from their course of reactionary passivity, they will be ignored in the development of the social organism that is so apparent above the horizon. If real leadership is not forthcoming, if opportunities are not seized, the general public will have little faith in medical opinions and ideas as expressed in resolutions.

One might ask, as a question of interest, how far medical societies are responsible for failures in health administration when they fail to recognize the human element in health administration and permit inefficient health administration, or do naught to prevent the breaking down of effective administration for political reasons? Medical politics unquestionably represent an extreme type of the selfish human element, and to permit politics to enter into health administration, or to weaken hygienic machinery is evidence of a complete failure to understand the importance of the social phases of health protection. Medicine must not condone or tolerate political inaction or chicanery in health administration.

Medical societies have been effective in many ways in promoting medical progress and the social intercourse of their members, in advancing their intellectual life, and in stimulating and encouraging colleagues to dwell together with reasonable peace and amity. But the time has come when they must serve the community as a whole, as well as their membership. They must have vision, courage, directness and activity, in striking contrast to the egregious passivity and inaction which has characterized them in the past in most affairs where the public welfare has been involved. There must be more leadership in constructive action, and possibly fewer resolutions whose value has departed after the ink has been dried on their first publication.

Experimental Polyneuritis.—The study of diseases due to dietary deficiencies is dependent largely upon experimentation. In *The Public Health Reports* (January 3, 1919), Voegtlin and Lake call attention to

their studies of "Experimental Mammalian Polyneuritis Produced by a Deficient Diet," the detailed report of which is published in the *American Journal of Physiology* (January, 1919).

A resumé of their findings demonstrates that a polyneuritis can be produced in cats and dogs as the result of an exclusive dietary of lean beef which has been heated for three hours at 120° C., in the presence of sodium carbonate. The symptoms of loss of weight, weakness, paralytic symptoms, convulsions, muscular spasticity, disturbances of circulation and respiration, and the loss of body weight promptly clear up after the oral administration of the antineuritic substance of yeast.

Their investigations have determined that polyneuritis is due to a dietary insufficiency of the antineuritic substance, and not to a deficiency of such other essential dietary components as the amino-acids and fat-soluble vitamines. The most practical observation resulting from their experiment is that the ordinary cooking of meat for human consumption does not lessen its food value, insofar as its antineuritic power is concerned, because the cooking of meat for three hours at the temperature of 120° C., without the previous addition of alkali, does not completely destroy its antineuritic power. From the standpoint of investigation, it is worthy of noting that cats react to the deficiency diet with greatest regularity and, therefore, are best adapted for physiologic studies of the function of the antineuritic substance.

The food conservation movement and concurring limitations in diet due to prevailing high costs have focussed unusual attention upon problems of nutrition. The stress hitherto placed upon caloric feeding has played a valuable part in awakening

an understanding of food needs, but has not sufficed to clear up our views regarding nutritive values not dependent upon the number of calories provided in the daily food supply. Normal nutrition involves a conception of vitamine and mineral metabolism which is still in the course of evolution. The light which has been shed upon beriberi, scurvy, rickets, pellagra and malnutrition in general establishes beyond doubt the necessity of further investigation of the function of food factors hitherto unknown or underestimated.

Every fact added to our present state of knowledge advances not merely the science of nutrition, but directly improves the possibilities of advancing the general health and vitality of communities. Empirically, human foods have been developed along various lines, but an estimation of their health values becomes possible only when there has been thoro investigation as to the effects of culinary processes upon the digestibility and essential nutritive values of the foodstuffs involved. The test tube is not the stomach, but the results of test tube experiments, when supplemented by animal experimentation, are deeply suggestive of the effects of food in human metabolism.

habilitation Series, Number 17, January, 1919, deals with "The Practice of Medicine as a Vocation." This monograph purposed to answer various questions that may be in the mind of returned soldiers who are undecided as to their future occupation. The brief exposition is well given and might well serve as an introductory document for students in medical colleges or, better, be provided to all students in the graduating classes of high schools previous to their taking up a course of professional study. It is patent that familiarity with the possibilities of a profession should exist before work is begun and before time, money and energy have been expended. The description of the nature of physician's work and the degree of pre-medical education required is excellent, despite its brevity.

It is improbable that a large number of soldiers with disabilities will seek to prepare themselves for the practice of medicine, not merely because of the possible handicap arising from the disability, but because of the length of time essential in preparation and in establishment in practice, as well as the high degree of preliminary education demanded of candidates in medicine. If, however, a course in medicine is desired, and the applicant's request is approved by the Federal Board, the costs of education will be furnished free by the government. In addition, the Bureau of War Risk Insurance, thru its compensation, will meet part of the expense, and the Federal Board of Vocational Education will add to that amount a minimum of \$65 a month for the purpose of meeting the expenses for living, clothing, transportation, tuition and incidentals.

This liberal policy should enable those physically and mentally prepared to undertake the work of medical or surgical prac-

Medicine as a Vocation.—In the endeavor to acquaint disabled soldiers, sailors and marines with the possibilities of various vocations, the Federal Board of Vocational Education has prepared a large number of Opportunity Monographs. This method of familiarizing potential workers with the nature, characteristics, educational qualifications, duration of study and possible rewards might well be emulated in all schools.

A recent publication, *The Vocational Re-*

tice to accomplish results unattainable by many who have not been injured in government service. There are many fields of medical practice in which slight degrees of physical defect will not interfere with successful efforts. In all probability only a small number of men will take advantage of this liberal government policy which represents a remarkable opportunity for the rehabilitation of men possessing the essential attributes physically, mentally and morally to add luster to the medical profession.

Diphtheria Control.—The prevalence of diphtheria, despite our wide knowledge concerning its causation and cure, as well as effective prevention, is a matter of considerable concern. Bernard W. Carey, epidemiologist of the Massachusetts State Department of Health (*The Commonwealth*, December, 1918, and *Boston Medical and Surgical Journal*, Jan. 8, 1919), calls attention to the subject in a most interesting study of one thousand deaths from diphtheria.

About 65 per cent. of all deaths from diphtheria and croup occur in children under five years, so presumably the morbidity also is greatest during the first five years of life. Carey points out that there is considerable question as to the part that schools play in the diphtheritic infection in children under the school age, tho there can be little doubt that the process of education in crowded classrooms is a factor in spreading the disease among school children. Efficient school supervision, the taking of cultures, the prompt detection of healthy carriers and incipient cases serve as an excellent means of prevention and control of diphtheria outbreaks.

Study appears to show that, unfortunately, in many instances, the diphtheritic condition is unrecognized, or is first treated as a simple tonsillar infection until it is too late to secure the efficacious action of antitoxin. In fact, many instances are recorded of individuals suffering from nasal diphtheria receiving no other treatment than that which would ordinarily be given for a simple catarrhal infection of the nose and throat.

From the standpoint of public protection it is almost axiomatic that the specimen for culture should be taken in all conditions where there is even a remote possibility that diphtheria is present. It is similarly axiomatic that individuals presenting symptoms which are at all suspicious should have antitoxin administered at the time that the culture is taken, instead of delaying such therapeutic measure until a report upon the culture will have been received from the laboratory. The early administration of antitoxin is essential for securing the best results. The diphtheria mortality rate can be reduced only by the early injection of antitoxin when, perchance, only the suspicion of the disease may exist.

Regrettably, the physician all too frequently is not called upon until a large variety of household remedies have been tried and the disease has had an opportunity to advance into toxic states more difficult of control or cure. The public requires education as to the importance of a large dose of antitoxin administered within 24 hours after the onset of the disease as the first and principal step in the cure of diphtheria. Carey reports that 11.8 per cent. of the cases investigated "were found moribund upon visitation by the physician." The presence of various other diseases and the general decline in the incidence of diph-

theria have tended to make the profession somewhat negligent in stressing its importance as a destroyer of child life.

A Serious State of Affairs.—Two items merit particular comment because they represent a serious state of affairs. "7.6 per cent. of the deaths occurred in 'unrecognized' cases." This seems almost unbelievable and since it occurred in the State of Massachusetts, where the State Department of Health is not only ready to examine all cultures sent to it but reports results by telephone or telegraph without cost and gives free distribution of antitoxin, it probably is a lower percentage of unrecognized cases than exists in other states of the Union where similar facilities have not been afforded. In this day and generation failure to recognize diphtheria may almost be regarded as *prima facie* evidence of carelessness, negligence, or ignorance. The certainty of laboratory investigations, the ease with which cultures may be taken and the promptness with which reports thereon may be secured, increases the responsibility of physicians for securing accurate diagnoses of diphtheria. Of course, occasionally, positive cultures are not procured in an early stage of laryngeal diphtheria owing to the fact that cultures are not properly secured from the larynx.

The second item is also a challenge to medical practice. "In no instance did we find antitoxin given intravenously." It scarcely seems believable that with our present knowledge of the use of serums and their efficacy when introduced directly into the blood system that patients with diphtheria, seen late in the course of the disease, should fail to have the opportunity of an intravenous injection of antitoxin. This single fact is of more importance than the considera-

tions of the variations in dosage which have been employed and the possible danger of anaphylaxis which occasionally follows its use when due precautions are not taken.

In view of the findings reported, it is not unreasonable to quote two paragraphs which would seem to be uncalled for, but apparently should again be called to the attention of the profession.

"With such a lack of uniformity in the use of antitoxin it seems as if the medical profession should be informed, from authoritative sources, as to the most approved method of its use, and its dangers thru misuse, either in dosage or method of administration.

"Particular stress should be laid, in the instruction of medical students, upon the necessity of properly administering antitoxin, thus avoiding the chances for anaphylactic reaction and there should be impressed upon them the need of early and sufficient treatment."

With the Schick test, the toxin-antitoxin mixture for immunization, the cultural test for diagnosis and the availability of antitoxin for free distribution, there is little excuse for the present figures relating to diphtheria mortality. Greater efforts must be made, not merely to control the mortality rate but to study the growing population during the pre-school age with a view to determining the diphtheria carriers and the children susceptible or immune to diphtheria, with a view to increasing the immunity of all, thus decreasing directly the possibility of a large morbidity and mortality.

Very few diseases theoretically are brought so completely within the field of potential control, prevention and cure as diphtheria. The therapeutic and prophylactic progress that has been made is indicated by the reduction of the mortality rate of diphtheria and croup from 43.3 in 1900 to 14.5 in 1916. It is difficult to estimate the part that general prophylaxis has played in

this most excellent decline, but a considerable share must be attributable to general sanitary and hygienic measures. This is strongly suggested by the decline in the mortality rate of scarlet fever in the registration area from 12.2 in 1900 to 3.3 in 1916.

The fact that one per cent. of the officially registered deaths in 1916 was due to diphtheria is sufficient reason for again emphasizing the necessity of improved methods and practice in the prevention, control and cure of diphtheria.

Tonsillectomy During Childhood.—

Tonsillectomy has become increasingly popular as a remedial operation for a large variety of conditions from the relief of chronic recurrent quinsy to mental dulness. Its employment for purposes of prophylaxis has been urged in order to prevent otitis media and various pulmonary disorders. Immediate results frequently are most satisfactory and little thought has been given to the remote effects of the operative procedure.

The general extension of tonsillectomy, as a result of persuasion following upon the efforts of medical inspectors of schools, school nurses and others interested in building up the vitality of youth, makes it of interest to inquire into "The Remote Result of Tonsillectomy in the Young Child" as pointed out by Zahorsky, *Interstate Medical Journal*, January, 1919. The study of 150 children, aged two to twelve years, to ascertain the effects of the removal of tonsils and adenoid vegetations upon the health and nutrition of the children six months to five years after operation, casts a certain suspicion upon the effectiveness and desir-

ability of this procedure among the very young.

Zahorsky points out that the operative removal of tonsils and adenoid tissue does not suffice to clear up deficient nasal respiration, nor prevent middle ear disease with any great degree of certainty. While there may be no causative relation, it is at least of interest to note that many of the young children had one or more attacks of pneumonia within the three years following the operation. This is somewhat supportive of the idea that tonsillectomy appears to increase the tendency to bronchial and pulmonary infection, altho no conclusive deductions can be made from the few available facts. It is patent that the removal of tonsils does not suffice to prevent rheumatism, endocarditis, or chorea, in the etiology of which great stress has been placed upon the liability of the tonsils to infection with the initial causative organism.

Malnutrition frequently serves as the excuse for tonsillectomy, but it is undeniably true that this itself is without avail in improving the general nutritive condition. Nor does it build up a more vigorous vitality without the benefits of supplemental feeding and auxiliary hygienic care, tho a reasonable percentage of children show permanent improvement as the result of the improved oxygenation.

Tonsillectomy cannot *per se* add specific anti-bodies to the blood and tissues. For the most part these are dependent upon immunity developed thru attacks of disease or fostered by means of prophylactic inoculations. The entire question of vital resistance and susceptibility to infections may be independent of the tonsils, tho according to Zahorsky:

"The child beginning his school life with-

out the tonsils is in greater danger of acute diseases than one who still has his tonsils. It is at this age that the tonsils are so frequently removed simply because they are large; the physician apparently forgets that this enlargement is a physiologic and a compensatory process."

Regardless of the accuracy or relative value of the data offered by Zahorsky, which he recognizes as insufficient and particularly so by reason of having no data on a control series, his conclusions merit earnest scrutiny. He demands that among children under seven years of age the removal of tonsils and adenoid tissue should occur only after a careful study of the child's nutritional condition and possible state of immunity. His plea is for a conservative attitude rather than a radical impulse to remove every tonsil that peeps beyond the pillars. Pathologic conditions existent in the tonsils, abscesses, infections, diseased states following scarlet fever and diphtheria call for remedial operation. Certainly cardiac states following upon tonsillar infections call for their removal.

Accepting all the alleged benefits of tonsillectomy it is the part of wisdom to investigate statistically, insofar as may be possible, the relative health conditions of children with and without tonsillectomy in various age groups so as to establish approximate comparative forms of infection. The question suggested as to the advisability of tonsillectomy for slight or trivial causes in children under seven years of age can only be answered adequately and accurately by a thoro study of the clinical histories of a large number of children covering many years. Conservatism in tonsillectomy should be the rule, as rational conservatism should be applied in the consideration of all operative procedures.

Hazards of Cloth Sponging.—The mass of data necessary for building up a system of rational industrial hygiene receives constant additions. The correction of conditions inimical to the health of employees is dependent upon the investigation, appreciation, recognition and alteration of environmental states which have grown up thru the habit of years of building factories, workshops and industrial institutions without regard to the welfare of employees. This state of affairs, however, is by no means significant of intentional neglect, nor of aggressive indifference. Only during the past decade has there developed a sense of responsibility for the welfare of workers commensurate with its importance. The awakening as to the importance of industrial hygiene has been slow, and only recently has it set in motion a widespread movement for the reorganization of industrial machinery tending towards the elimination of unnecessary hazards.

The New York State Department of Labor, thru the Industrial Commission, has added a few more facts to the general subject of industrial hygiene by the publication of a bulletin on "Health Hazards of the Cloth Sponging Industry." The essential dangers are twofold: First, the dangers of the inhalation of fluff" by the cloth examiners, which tends to cause respiratory irritations; second, severe physical effort and the presence of high temperature and humidity serve to lower the vitality of those actually engaged in the process of sponging.

Knowledge has long been at hand to demonstrate the unhealthful effects of hot, humid air which increases bodily temperature, stimulates heart action and causes a depletion of bodily moisture disproportionate to the actual work performed. Studies

of fatigue have pointed out the extra hazard that ensues when the dilated blood vessels of the skin rob the brain and spinal cord of necessary blood, causing weariness and apathy. The elevation of bodily temperature reacts upon internal conditions unfavorably, producing a febrile state, which, when long continued, affords excellent opportunity for the development of fatigue. Hot, moist atmospheres are particularly hazardous if the temperature shown by the wet bulb thermometer exceeds 78° F. In the words of Barker (Heating and Ventilation), "A temperature of 75° F. wet bulb should not be exceeded, and a limit of 70° F. is still more desirable." In an investigation of 37 factories, only 12 showed a wet bulb reading below 76°.

An examination of the general health of men who have worked in the industry in periods ranging from one to thirty-five years there was evident a marked preponderance of diseases of the respiratory tract, the most important one being pulmonary tuberculosis. Nineteen per cent. of 95 men carefully examined evidenced various stages of tuberculosis. Among other diseases were noted acute and chronic bronchitis, asthma and pleurisy. The presence of this high respiratory morbidity led to an analysis of the mortality of the industry as shown by the records of 17 men who had been thus engaged and had died during the three previous years. The actual cause of death was ascertained in eleven instances, in five of which pulmonary tuberculosis was found to be the cause of death.

It is obvious from this morbidity and mortality that there has been an unusual respiratory hazard in the cloth sponging industry, and that the main factors responsible have been "fluff" on the one hand, and undue heat and moisture on the other hand.

The recommendations of the commission are based upon these two factors, and provide "that a dressing room, properly heated to 68 degrees F. in winter, containing sanitary lockers be installed in each factory for use of sponging workers.

"That suitable means shall be provided to dry clothing of employees working in sponging rooms.

"That fans should be of such capacity as to maintain a wet bulb temperature in sponging rooms not to exceed 75 degrees F."

The simplicity of the recommendation, to which must be added the suggestion that a light mask or respirator be worn by cloth examiners while at work, demonstrates how easily some industrial dangers may be averted. It is equally obvious that simple as these recommendations are, they would have been impossible had there not been a careful study of the methods utilized in the industry and a thoro investigation of the factories themselves. Ninety establishments were visited and a total of 88 orders were issued against fifty factories.

It is necessary to place industrial hygiene upon a scientific basis. Theories must give way to proven facts. Industrial methods must be altered from traditional forms in order to be safe for the living machinery upon which all industry is dependent. The increased interest in industrial welfare carries with it a certain measure of responsibility for the medical profession which has to deal with the workers who suffer from diseases and disabilities resultant from industrial application. Medicine profits by every additional discovery in the industrial world, but from none more than the establishment of the underlying industrial conditions causative of undermined health or frank disease.



MEN AND THINGS

"Beer or Bedlam."—In many communities thruout the country there has been set afoot a concerted movement against the bone dry law that threatens to come into effect at the close of the year, and it is highly significant that the agitation against complete prohibition is, for the present at any rate, confined largely to industrial centers. It is the workingmen who are protesting, an increasing number of them showing the "No beer no work" button in the lapels of their coats. And it is of even greater significance that it is their familiar and amiable beer for which they are clamoring—of all alcoholic drinks the least harmful and least socially menacing. Whatever one's attitude toward prohibition, one cannot but commend the modesty, the restraint, the humility of the workers of this country. They might have been tempted to assume an extravagant air of protest and chosen "No wine no work" as their slogan, which lends itself to more alliterative persuasion. Or they might even have assumed a decidedly belligerent and vicious tone of defiance by having "No whiskey no work" as their device, the severity of their intentions borrowing its viciousness from the very form of alcoholic drink they adhered to thus. But no; they selected beer, and in doing so they have shown excellent judgment, if it was judgment and not instinct on which they were depending when they made the selection. For even the unfriendliest prohibitionist cannot bring against that mild workingman's drink the severe charges he can easily summon against its more insidiously harmful fellows. And the consequences may be (from present indications it begins to appear that they probably will be) that a more charitable attitude will be assumed when the final disposition is made and that an attempt will be made to allay the disgruntled protests of the workingman and grant him his modest allotment of beer.

However, the expedient of yielding on this seemingly innocent point is fraught with no small danger. The concession of

beer is a concession to the working classes; but in this country, which has not yet yielded to the lure of Bolshevism, the bourgeoisie still remains a class that has claims to a modicum of recognition and charity. The leisurely and wealthy classes still retain a few of their rights and privileges. And these may very naturally be expected to show a measure of the consideration that is meted out to the lower levels. "If the workingman has his beer," they might justly insist, "we want our wine." What course will be open to any just authority other than to yield once more and grant the wealthy man his wine? And having yielded on this point, having granted the wealth-producing and wealth-owning classes the privilege of the drink of their class, the mid-strata of society may arise to claim their individual preference in drinks as a privilege. The actor will put in a claim for his whiskey and soda, the tired business man for his cocktail, the chorus girl for her crème de menthe, the artist for his "grog américain," the Bohemian for his absinthe. Certainly the road to compromise and concession is not the smoothest of paths.

Prohibition and Individual Rights.—

The temptation to be facetious on the question of prohibition is an old and honored temptation, but there is, of course, a serious side to the problem of the protest of the working classes against the strict enforcement of the new law. The pessimist will no doubt see in the agitation that is going on in industrial centers the work of the liquor interests, who stand to lose a great deal under the new law and are willing to spend a fortune to defeat it; but the less cynical critic will see a more fundamental motive in the insistence of the worker on the retention of beer. The contest is more than a clash between the prohibitionists and the liquor interests; it is the old, familiar clash between the individual and society. The ground on which the workingman threatens to maintain his stand is not that he has a right to his beer but that he has a right to his individual rights, that the attempt to dictate whether he shall drink or not is an infringement by the state on his private privileges, that society is going beyond its function in invading the home and controlling its free conduct. "Stop public drinking, if you like," the worker may say, "shut up the saloons and

cafés, if you think best, but if you invade my premises and forbid me my bottle of beer at dinner you are going altogether too far. You may say that it is a harmful practice. I don't grant that, but even if it is, what of it? I have a right to harmful practices provided I alone am injured by them. There is no law that will stop me from cutting off my toes or trimming my ears. That is my own affair. Your right to hinder me only begins when I try to cut off my neighbor's toes or trim his ears. I alone am master of my own body or my own home."

Putting the problem in this way (and it is being put this way more and more by the more intelligent critics of prohibition) it assuredly takes on a different countenance; it becomes a serious, even a dignified, contest between individual and social rights. But of what value is the citizen's claim that society has no authority to invade his individual domain? The simple, indisputable answer, the answer that history maintains as true, is that society invariably sacrifices the individual for the sake of the whole community. Society, in this respect, has a double function: to encourage and defend individual rights, and to limit them; and the function of limiting them it has never evaded when it has found it necessary to do so. It has encouraged the privilege of the individual when such privilege was beneficial to organized society; it has invariably assumed the authority to limit that privilege when it was deemed injurious to society. The deciding factor was always the consideration whether any individual practice was anti-social or not, and if it was anti-social the individual was invariably sacrificed. The clash on prohibition between society and the individual must be judged in this way. Is the drinking habit anti-social or is it not? An honest man will answer both yes and no. Drink has been in many instances a force for disorganization; it has broken up homes, it has ruined careers, and it has often been the inspiration of lawlessness. To this extent it has been anti-social. But there are aspects of the drinking practice which are decidedly closed to such criticism. The workingman's beer, taken moderately and often in the bosom of his family; the epicure's bottle of wine, rarely abused by the fastidious epicure—these certainly are not anti-social and it would be unjust to condemn them as such. Obviously, then, the protesting work-

er is well within the limits of reason and justice when he protests that society is exceeding its authority when it takes away his beer, the epicure is justly indignant when society removes the bottle of wine from his dinner table, and the consequence is that both sides seem to be right. In such a dilemma there is but one course open: to preserve the element of right in each opinion, which would mean, in this instance, that the perfect solution would be for society to destroy the drinking habit insofar as it was anti-social and preserve it insofar as it was in no sense a menace. Is such a solution altogether impracticable? Abortion is illegal, but there are instances where it is practiced with the full approval of both law and religion. The taking of life is forbidden, but there are special circumstances in which it is condoned. The taking of drugs is universally condemned, but doctors prescribe them in numerous cases without any hesitation. Is prohibition subject to the same sort of treatment?

A Medical Journalist's Splendid Record in the Army Medical Service.—The record of the work of American physicians in the great war will ever stand as one of the brightest pages in the annals of the American medical profession. Early during the period of the expansion of the Medical Department to meet the needs of the enormous army the United States was training and planning to send abroad, there were heard criticisms from many quarters to the effect that medical men were backward in offering their services. This was most unwarranted, for there were thousands of physicians who wished to enlist but were prevented from doing so because of being just outside the age limit, or because of some slight physical infirmity. If there was any hesitancy or delay on the part of the younger members of the profession, it was due to red tape and misunderstanding. As soon as the situation was cleared up and certain misconceptions were removed, the number of physicians who sought to join the colors was so great that the army authorities found it difficult to issue commissions and assignments to those acceptable. Never can the patriotism of the American doctor be questioned or held in doubt. A particularly gratifying

feature of the demonstration of the loyalty of the medical profession in connection with the great war has been the large number of doctors of large income and great importance in their communities—men holding

selves to national needs, irrespective of their own interests, was our good friend, Dr. Jos. MacDonald, Jr., Editor of the *American Journal of Surgery*. We are especially proud of Dr. MacDonald's record, and take



MAJOR JOSEPH MACDONALD, JR.,
Army Medical Corps, U. S. A.

the highest positions—who have cheerfully sacrificed every personal interest to enter the medical service of the nation.

Among the well-known medical men of the United States who thus devoted them-

particular pleasure in referring to it briefly, because in a way he has represented American medical journalism and the ideals it has stood for since the fateful day when Germany "unleashed the dogs of war." Dr.

MacDonald's qualifications as an executive and administrator, unusual in a medical man of his professional knowledge and attainments, have enabled him to accomplish a great deal that would have been impossible for the average physician. In fact, we are confident we are making no extravagant statement when we say that few men have done more thru their own personal effort to aid and promote the organization of the Army Medical Corps than Major MacDonald. According to the record, he was commissioned in 1913 as a first lieutenant in the Medical Reserve Corps, U. S. A. Having a fondness for military work he attended a number of camps of instruction for medical officers, notably at Tobyhanna, Pa., and took the special course for medical officers arranged at Ft. Leavenworth, Kansas. In March, 1917, at the organization of the United States Army Medical Examining Board for New Jersey, he was appointed adjutant of the board and on April 10th, 1917, was commissioned a captain. On December 10th, 1917, he was commissioned a major in the Medical Corps, U. S. A., and in April, 1918, was appointed by Surgeon-General Gorgas president of the Army Medical Examining Board of New Jersey. Between June, 1917, and November of that year he covered 3,200 miles in the State of New Jersey in the interest of the examining board, which means many trips considering that New Jersey is only about 180 miles long and less than 100 miles wide. Over 1,100 members of the medical profession of New Jersey were physically and mentally examined by this board and over 1,000 were recommended for commissions in the Medical Corps, U. S. A. In June, 1918, Major MacDonald was appointed by Secretary of War Baker, a member of the General Medical Board at Washington. Major MacDonald's activities in the interest of the Army Medical Corps have not alone been confined to his work in New Jersey. As secretary and treasurer of the American Medical Editors' Association, he prepared two special editorials a month for over 100 of the leading medical journals thruout the United States, setting forth the needs of the medical department of the United States Army. This work he carried on from June, 1917, until the signing of the armistice.

Upon Major MacDonald's honorable discharge from the army, he was highly com-

mended by the surgeon-general, who expressed his personal appreciation of the splendid spirit manifested in giving such faithful service and valuable assistance to the army.

It is understood that Major MacDonald as a civilian will remain a member of the General Medical Board at Washington.

In closing these few words of tribute to Major MacDonald, we believe his many friends will feel as we do that in serving the Nation in its hour of stress so faithfully and well, he has honored his colleagues, especially those who have been associated with him in medical journalism. After all there are few who will be surprised, for Dr. Joseph MacDonald's efficiency has long been known, and his work during the past decade as secretary of the American Medical Editors' Association will stand for many a day as a monument to his fidelity and administrative ability.

Sleeping Car Sanitation.—The mysterious process by which certain reputations are made and retained despite every indication to the contrary is distinctly a phenomenon worth reflecting upon. Take, as an instance, the one-time magic of the "Made in Germany" label—now, happily, a vanished illusion. In pre-war days, the "Made in Germany" stamp to many minds carried with it an assurance of the cooperation of the best of workmanship, the finest of materials, and the minimum of cost. For a long time (for too long a time) this popular illusion prevailed. Recently, a group of men in a restaurant fell to discussing the quality of German-made goods and the secret of their success over many a British product. One of the men asked all present to produce their pen-knives and examine them. Of the six men present, five had knives made in Germany, one alone had a knife made in England. The five German knives had all been sharpened often and were in poor condition. The one English-made knife had seen more service than any of its rivals, had never been sharpened and was still in excellent condition. And everyone wondered why the Germans had been able to sell five knives for ever knife the English could sell in the United States. Exit a grand illusion, and enter a new wisdom.

American sleeping car accommodations

are noted all over the world as having attained the highest point in perfection of service. In Europe the American standard is used in judging the qualities of the service there, but to any one who has traveled southward this winter it would appear that this is only another instance of a great illusion persisting in the popular mind for some reason that is in the highest sense mysterious and inexplicable. Such a traveler would be only too apt, provided his critical faculties were at all operative, to conclude that the service is the worst rather than the best in the world and the service is the worst in the one direction of night travel where it should be scrupulously good for excellent reasons. The drift toward the south in the winter is largely on the part of wealthy pleasure seekers, but it is perhaps more conspicuously noteworthy for the great number of people in delicate health who seek the mild climate of the south during the trying months of severe northern weather. More than any other class, these ailing folk are entitled to the greatest consideration on the part of those to whom they entrust their well-being and comfort during the period of transit—a consideration for which they pay generously enough, when one considers the Pullman rates of today. One would think, then, that the southbound railroad service would be, in point of sanitation, at any rate, the most carefully conducted of all; and yet the traveler becomes at once strikingly aware of one gravely unsanitary symptom of neglect which compels him to indulge in the most pessimistic speculation. He observes in the first place a startling neglect of the general rules of cleanliness in the sleeping cars and then he notices a most disheartening condition of blankets and mattresses. These, if they are sterilized at all, are sterilized at such long intervals as to render them—one cannot resist the temptation to say dangerous—dangerous both to the ailing travelers, who are exposed to accentuation of their ailments, and to the sound passengers, who are exposed to contagion from ills which they have every right to be protected against. A close inspection of the bedding on these railways would lead one to the conclusion that the sleeping car is one of the most effective carriers in the transmission of acute respiratory infections. It has been frequent-

ly noted and wondered at that many northeners, a few days after arriving in the south, develop mysterious colds and bronchial disorders, the origin of which is very obscure; and it may not be at all unlikely that these disorders may be traced to the unsanitary conditions prevailing in the sleepers in which they traveled. Both classes of travelers, the well and the ill, are justly entitled to better care on the part of the railroad officials; and it would be well for both to make it plain to the authorities responsible that they insist on better protection, that they expect more attention to be paid to the primary rules of sanitation that prevail in even the most modestly conducted sleeping quarters. Pullman cars are not exempted from these rules merely because they are only temporary sleeping quarters.

Fletcherism.—Horace Fletcher, whose name has not undeservedly been incorporated in the English vocabulary and who died in Copenhagen recently, has left behind him a legacy of food wisdom which has been more applauded than it has been heeded. During the past few years Horace Fletcher had not been much in the public view, but a dozen years ago and for some time afterwards his philosophy of eating, which came to be known as "fletcherism," enjoyed an enormous vogue. It threatened, in fact, to revolutionize the art (or would it not be truer to say the practice?) of food consumption, and it did indeed win a modest number of converts, but its promise of huge results was not achieved. It would perhaps be more precise to say that innumerable converts were won to the theory but very few to the practice. But this failure to alter the eating habits of a whole nation (which was no doubt Fletcher's aim) cannot be ascribed to the weakness of his philosophy, which was distinctly convincing and which was demonstrated as potent by a number of exhaustive tests. Fletcher's system failed because it was a simplification and because the trend of all modern progress is toward complication. Civilization seems to abhor simplicity as much as nature abhors a vacuum. Wagner's "Simple Life" created a huge stir and won great popularity. For a long time it was the only topic of conversation in drawing-room and café

alike, but, tho it taught many people to speak eloquently and passionately of the delights of the pastoral life, it persuaded very few to go back to nature. The trend in recent years, despite Wagner and the "Simple Life," has been decidedly away from the vast spaces of the open country and toward the confinements and narrow alleys of the great cities—away from simplification and toward complication.

Compare a table d'hôte menu of the middle ages with yesterday's dinner card at one of the smarter hotels and the same unmistakable tendency will be revealed. The gluttonous wassailers of the romantic old days, noted for their everlastingly yawning stomachs and insatiable palates, would flush with envy at the refined gluttony of the modern banquet table. The sin of the age is not so much undernourishment as it is overeating. Of any ten people of comfortable means chosen at random, seven eat too much and two eat unwisely. It was Fletcherer's hope that he might persuade these seven to eat less and the other two to eat more discreetly. And for a time it looked as tho he might succeed. His was not a laboriously scientific theory, minutely computing calories, and proteins, and starches. It had all the ear-marks of a popular conception. "Eat as often as you like and whatever you like," he said, "only see to it that you masticate your food properly and that you do not swallow a morsel until you absolutely have to. There are little tongues in the back of your mouth which will draw the food down when the stomach is ready for it. Leave the business of swallowing to them. All you have to do is just chew, chew, chew." Anyone who has followed these simple injunctions will be ready to testify to their great wisdom. Food consumed in accordance with the theory of "fletcherism" fulfills not only the first function of food, the satisfying of the appetite, but in addition conduces to a fitness and alertness of physical condition unknown to the "heavy" eater. No man has eaten well who cannot, after a good meal, take a jog trot around the square without feeling the effects; and anyone who has fletcherized his meal can do that. Such a result alone would justify the value of the theory. Yet, what is the verdict of the public? In the last decade the number of "quick lunch" restaurants has doubled! It is a misfortune for any man to choose a philosophy that counsels

a slowing down of the speed of living in an age when the aeroplane and the jazz band dictate the tempo to which most of us respond.

Dangers of European Travel.—The offices of the various steamship companies thruout the country have been besieged with application for passage across the Atlantic which run into the hundreds of thousands, and it seems that the moment the bars are let down there will be an unprecedented rush of travelers who are keen to visit the battle scenes of Europe or to see how the capitals they knew so well in peace time have altered under the strain of four years of war. No doubt the people of Europe look forward no less anxiously to this rush of foreign visitors, who promise an increase of revenue which will be welcome after the strain of expenditures which the war has entailed. But there are two good reasons why Americans should for the time being postpone their proposed invasion of Europe. One is that the officials of the allied countries do not want them to come at this time, when the transportation facilities are strained to their utmost in the complicated task of demobilization and reconstruction. Italy has already officially announced that she would regard a postponement of any influx of American visitors for the present as a favor, and France has intimated as much thru more than one of her spokesmen. But there is a second consideration of forbidding importance—forbidding to the traveler—and that is the danger such a traveler would expose himself to in visiting Europe at a time when contagious diseases are as prevalent as they are abroad just now. The vitality of the peoples of Europe, sapped by the burdens of so long and so trying a war, are at low ebb, and diseases such as typhus, pneumonia, smallpox and others have found ready victims everywhere. Besides, many of the returning prisoners are coming back to France consumptive. These diseases are a distinct menace to anyone exposing himself to them, and Americans would be exceedingly unwise to refuse to allay their curiosity when it can be satisfied only at the cost of such unnecessary exposure. It would be more sensible to postpone that projected trip to Europe until such time as conditions there are restored more nearly

to normal and the danger to the health of the visitor is eliminated.

Making War Unprofitable.—While doctors of jurisprudence and authorities on international law are examining and re-examining the items of the League of Nations Covenant, the average inquiring mind, with only humane common sense to guide it, will find embodied in the articles of this Covenant a single, homely, unpretentious item which will go a good way toward the solution of the problem of war. One paragraph in Article VIII reads: "The high contracting parties agree that the manufacture by private enterprise of munitions and implements of war lends itself to grave objections, and direct the executive council to advise how the evil effects attendant upon such manufacture can be prevented," etc. This can mean only one thing: government ownership of the materials and facilities for manufacturing the implements of war. In reading this item, which seems to have won so little notice for itself, one cannot but recall the notorious instance of the munition magnates who bought out a French paper and a German paper and promptly began a campaign for armaments which constitutes to our mind the most flagrant, the most culpable and heartless flirtation with war that history records. The German paper came out editorially with a strong article on the need of a larger army, of more copious supplies to meet the national need. The French paper, owned by the selfsame firm and fully aware of the intention of this article, immediately took alarm at this amazing stand. It responded quickly with an equally emphatic article urging a larger standing army for the French, pointing to the threatening attitude the Germans were taking and quoting the German article to sustain its contention. The German paper, in its turn, made conspicuous extracts from the French article as a sign of the preparations that were going on in France for what could be interpreted only as aggression against Germany, and once more urged the necessity of a greater army, and of increased armaments. The shuttle worked back and forth in this way for a long time, until the reading public of both nations, believ-

ing what it read and being ignorant of the single ownership of both papers, came to a climax of nervous excitement and hysterically began to clamor for protection against a threatening enemy. Each side suspected the other, each side accused the other—and the net result was record dividends for the munition magnates. One can imagine that the responsibility of creating bitterness between two nations already sufficiently apprehensive of each other weighed very lightly indeed on the consciences of the enriched magnates.

It is a difficult and complicated adventure to try to make war impossible, but it is a comparatively simple and easily realizable aim to make war unprofitable; and making it unprofitable will make it undesirable to the malevolent forces which at times are in power in most prosperous countries and which are unscrupulous enough to consider their own selfish ends only. The item of Article VIII quoted, tho not as heroic and impressive an item as some of the more ponderous ones in the Covenant, has this far-reaching design in view. It will disarm forever the selfish interests which build their fortunes and their palaces on the groundwork of international hatred. These selfish interests exist in every country—men who, one should admit, are not infrequently as much the victims of their own greed as the millions whom they plunge into bloody conflict, who are often even convinced that their motives are genuinely patriotic and utterly unselfish and who are loudest in protesting their utter disinterestedness. It is wrong that any small group of men should be able to grow rich by a means which entails the impoverishment and suffering of every member of the community except themselves. No one likes war—that is a sane, sensible, normal feeling—and no one should ever be submitted to the temptation of compromising his instinctive hatred of war by the consideration that he will get something by it. There are two motives which control human conduct; love and greed; and in the past international relations have been regulated too often by national greed. We can think of no better first step toward the elimination of war than that which makes it forever unprofitable to any element, and Article VIII of the Covenant aims boldly and simply at that end.



ORIGINAL ARTICLES

SO-CALLED HEART BLOCK: RE- PORT OF A CASE INCLUDING A BRIEF REVIEW OF RECENT LIT- ERATURE.

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From a scientific or at least a technical standpoint, heart block seems totally inexpressive, inappropriate and a misnomer, since the cardia itself does not become "blocked." When and by whom the term was originated and introduced into medical parlance is of no importance; it appears to have been commonly employed since 1906 and will probably have to be retained until a more expressive designation is invented. *Pulsus bigeminus*, *bradycardia*, *cardiataxia*, *allorrhythmia*, *arrhythmia* and other more euphonious terms occasionally encountered in the literature fail to clearly express the evident meaning intended by heart block.

For many years the cause of the cardiac cycle and particularly the avenue thru which impulse is transmitted from auricle to ventricle, has been the subject of controversy. Certain physiologists have contended that transmission of cardiac impulse was thru the nervous system, while others have defended the muscular tissue theory. His (1903) discovered a muscular band connecting the auricles and ventricles, now generally known as the "bundle

of His," which in the human being is 18 mm. long, 2.5 mm. wide and 1.5 mm. thick. That this bundle transmits the impulse from auricle to ventricle has been experimentally demonstrated by several careful observers. It is stated that by compressing the bundle of His, all stages of interruption of impulse transmission from auricle to ventricle may be obtained; that slight compression causes an increase in intersystolic pause, greater compression an intermittency in ventricular contractions, complete compression independent auricular and ventricular contractions.

As at present used heart block may be defined as a circulatory phenomenon or symptom-complex in which the stimulus for contraction transmitted from auricle to ventricle by muscular fibers (bundle of His) is stopped or blocked. Defective conduction or transmission may be due to known or unknown underlying pathology. Lesions involving the auriculoventricular bundle must be exceedingly rare. A multitude of presumed exciting or contributing causative factors have been mentioned by those indulging in theoretical speculation, but so far as can be ascertained no definite or constant etiologic factor has yet been established.

There may be only an occasional prolongation of ventricular systole; the ventricle may only respond to every second or third auricular beat or even more infre-

quently; the block may be complete so that no stimulus whatever reaches the ventricle. In the latter event the auricle pursues one rhythm and the ventricle an independent (much slower) rate. The variation may thus be slight or considerable depending upon the degree of the so-called block and consequent defective conduction or transmission.

Anatomically heart block has been classified, according to the location of the inefficiency, thus: (a) auriculoventricular, when located at the auriculoventricular junction, (b) sino-auricular, when at the sino-auricular junction, (c) dextroauriculoseptolevauricular, when at the line of union of the right auricle with the left auricle plus the interauricular septum, (d) septodextroauriculolevauricular, when at the line of union of the right auricle plus the interauricular septum with the left auricle.

According to Blackford and Willius complete (chronic) heart block owes its origin to a functionally complete "break" in the auriculoventricular bundle, *i. e.*, failure of conduction from organic severance. Pathologically, inflammation, degeneration, infiltrating gummata and neoplasms are the chief lesions described. Valvular defects and coronary sclerosis are usually present. The most frequent valvular lesion is the mitral. Progressive changes in cardiac rhythm from definite prolongation of the auriculoventricular interval to the "dropped" beat, then to 2-1 and 3-1 rhythm and finally to complete dissociation of rhythm, have been recognized and described. The Stokes-Adams syndrome results from circulatory changes which produce cerebral anemia; in certain instances exercise seems to be the responsible factor, since there is no compensatory increase in the ventricular rate. Rare instances have been recorded where complete block existed for many

years with little or no clinical discomfort and in which no organic lesion was evident. However, the majority of patients with chronic heart block are confirmed cardiopaths, subject to the Stokes-Adams syndrome with its attendant dangers.

Mrs. K. C., aged seventy-one years, first consulted me April 7, 1911, complaining of brief attacks of "giddiness, fainty feeling and slow pounding of the heart," constipation and its results, but no headache. Her blood pressure was then 240 mm. Hg.; the urine contained albumin with hyaline and granular casts. Marked improvement in her physical condition resulted from about two months' daily hypodermic use of the Roberts-Hawley lymph compound. This continued until June, 1913, at which time she went to Seattle, Washington, where she remained until early in November. Her return trip was most exciting; her program was altered, and returning by a different route than intended, she was compelled to change trains eight different times. Her rest was greatly disturbed, she slept little and had the misfortune to lose her portmanteau containing valuables, which was afterward found, but too late to allow her to make a continuous journey home and she had to pay an additional fare from St. Louis to Louisville. I mention these circumstances merely to show the strain under which she labored for three or four days.

The patient returned to Louisville, November 12, 1913, and had a serious attack of syncope on November 16th. Similar attacks occurred from time to time during the entire winter; she sometimes had as many as twenty-five within twenty-four hours; her pulse to my certain knowledge was often as low as twenty beats per minute; the nurse reported the pulse as fifteen just before some of the attacks occurred. During the following summer the patient remained free from syncopal symptoms and was allowed to go about with an attendant.

The seizures began again in January, 1915, and were frequent until the latter part of May. At this time the woman was seventy-four years of age. The following additional history may be interesting: There had been no other serious illness since reaching womanhood; she had always applied

herself strenuously to business affairs and "supposed financial troubles." No luetic, tuberculous or "rheumatic" history. She had given birth to eight children without complications. Three years ago her pulse became intermittent and averaged 38 beats per minute, while systolic auricular sounds were 72. After first syncopal attack such seizures became frequent, but later occurred at longer intervals; seven weeks' immunity, then again becoming more frequent. One day she had eight attacks, in five of which she became unconscious, and three the next day developing suddenly, with pale face, cyanosed lips, absence of respiration and radial pulse for three minutes. The pulse returned at first weak and slow, gaining in force and frequency until it reached 120, continuing at that high rate for about thirty seconds. Her sensations were described as a "dizzy feeling in head" extending into the body followed by unconsciousness and sometimes involuntary defecation and micturition. Her eyes were set with lids half open and there was sometimes gagging when consciousness was returning. Her face was always pale and the pupils were contracted; no headache and no pain, excepting occasional lumbar discomfort; no dyspnea when patient was not excited. She said that two years ago she had vertigo which persisted for a month. For a considerable time her alvine evacuations were almost as white as cotton. Average pulse rate 28; average blood pressure 188-60; heart dulness $3\frac{1}{2}$ by $1\frac{3}{4}$; absolute dulness $2\frac{1}{4}$; apex beat diffuse and of moderate force; extra systoles, occasional systolic mitral murmur; auricular sounds 76 per minute, irregular; no pulsation in suprasternal notch. Left pulse full, right scarcely discernible.

Several of my confrères saw this patient with me in consultation and various methods of treatment were faithfully tried, including the administration of digitalis, atropin, epinephrin, etc., without any permanent appreciable effect. On August 4, 1916, the patient became unconscious, exhibiting the usual symptoms of apoplexy and died August 6th. Autopsy refused.

Bridgman and King speak of a negro having complete heart block, Stokes-Adams syndrome and a strongly positive Wasser-

mann reaction. After less than five weeks' antisiphilitic treatment conduction time was practically normal and he became symptomatically well. Wassermann reaction negative on two occasions four months later. Of especial interest was the electrophonograms which showed auricular sounds during complete block and after normal rhythm had been resumed.

Podmaniczky reports two cases of "rheumatic" heart block. The first occurred transiently during acute articular "rheumatism" in a young man. The attack developed suddenly accompanied by dizziness; the radial and carotid pulse receded to 32, that in the jugular vein being 94. The next day the pulse was 50, both carotid and jugular beating together. The second case was in a male of twenty-nine with a history of "heart trouble" for ten years following articular "rheumatism." Pulse 40, pulsation in jugular vein 70 to 80. The cardiac symptoms had entered a stationary phase and persisted for years. There seemed to be total permanent heart block from "rheumatic" myocarditis.

Thayer mentions a female who for two and a half years had occasional syncopal and eclamptic attacks with extreme bradycardia. Between these periods pulse regular, about 30 per minute. Polygraphic and electrocardiographic study revealed synchronous slowing of both auricles and ventricles, with greater prolongation of the As-Vs interval than hitherto reported. In polygraphic tracings a-c interval from 0.7 to 1.0 second; in electrocardiograms P-R time often over 0.7 second. Diagnosis disease of the auriculoventricular bundle. In a second case essential bradycardia occurred in a male of thirty-five. For five years pulse beat ranged between 30 and 40 with patient at rest. There was no prolongation

of the As-Vs interval. Vertigo and nausea five years ago, but no evidence that these were associated with auriculoventricular dissociation. Patient remained in good health despite persistent bradycardia.

Four cases of sino-auricular heart block are described by Levine showing pauses of heart action equal to multiples of normal heart cycle of the respective individual, there being no evidence of auricular activity during the pauses indicated blocking of the impulse above the auricles, *i. e.*, at the sino-auricular node. The first patient had bradycardia on exertion. The ventricular rate receded to 43 from acceleration of sinus rate. Tracings showed block depended on sinus arrhythmia. Whenever the sinus rate increased beyond a certain point the node failed to conduct impulse to auricles. Three patients showed sino-auricular block only after taking digitalis. One patient had frequent pauses in which one, two, three or four beats were blocked; at one time the electrocardiogram showed total sino-auricular block for "many seconds," the ventricles beating at their slow idioventricular rhythm.

Two cases are cited by Lundsgaard: (1) a male of fifty-nine suffering from aneurism of the aorta had transitory irregular pulse, appearing at one time like intermittent heart block, at another an arrhythmia perpetua; (2) a male of thirty-three suffering from "rheumatic" fever had intermittent heart block which disappeared when the joint symptoms ceased and the temperature receded to normal.

Laursen refers to heart block in a young man with no history of scarlet fever, diphtheria or acute articular "rheumatism"; nor was he guilty of excesses of any kind. He complained two weeks of headache, then sore throat and foot pains but no fever.

He suddenly became dizzy and fell; dizziness later returned with cardiac oppression. Examination revealed total heart block. Laursen thinks "some otherwise latent rheumatic infection was responsible for this complete dissociation of conduction between auricle and ventricle; and the subsidence of the heart block under treatment, as for acute rheumatism, confirmed this assumption of an indolent rheumatic infection localizing in the heart."

Leporsky describes a patient having heart block with complete dissociation of auricular and ventricular action caused by some lesion of the bundle of His. The symptoms were auricular fibrillation and ventricular automatism. The complete heart block was continuous and caused by congenital cardiac lesion. As auricular fibrillation combined with complete heart block was first observed experimentally by Frédéricq, it would be appropriate, Leporsky thinks, to classify in a special group cases of cardiac disease with this syndrome as "Frédéricq's phenomenon in man."

Frank and Polak saw a female aged two and a half years with heart block. The child had been earlier examined by other physicians and nothing abnormal noted, thus excluding congenital heart block. Symptoms were noticed while child was under medical care for fever of unknown origin. There was no cyanosis, but a tendency to dyspnea with slow, weak pulse. The heart was enlarged and the beats synchronous with the pulse. Auricle 107, ventricle 42.8. Digitalis retarded slightly the auricular rhythm, but had no effect on disturbed conduction.

In a case recorded by White acute transient heart block appeared as the first sign of acute "rheumatic" fever. The conduction time between auricle and ventricle

showed great delay before onset of joint symptoms and returned to normal about six weeks after the block was discovered. The myocardium not only gave the first evidence of importance of the illness, but also showed at least temporary damage, while no evidence was found of endocardial or pericardial involvement.

A male of forty-four described by Holterdorf presented the Stokes-Adams syndrome and also attacks of *petit mal* with complete loss of consciousness. The attacks occurred forty or fifty times an hour day and night; during five weeks the patient was in hospital he had nearly 25,000. Toward the end, intermissions became so short that attacks were practically continuous. The auricle beat three or four times to the ventricle once, but the regular ratio was preserved, heart block being incomplete. At necropsy several gummatous cardiac nodules were found but the auriculoventricular bundle showed merely small cell infiltration between the muscle fibers. "The only case approaching this in respect to the frequency of the epileptiform seizures was one of Zong's with two hundred in twenty-four hours, but in the present case there were eight hundred."

Simon and Robinson report functional recovery of auriculoventricular conduction between attacks of complete heart block. The electrocardiograms showed complete heart block only on one occasion, but the clinical observations and history make it clear that such occurred repeatedly, while records obtained between periods of block revealed but slight depressions of auriculoventricular conduction. Syncopal attacks occurred frequently over a period of two years. Between attacks the cardiac mechanism was practically normal.

Falconer refers to a male of sixty who

for two months had suffered from "shortness of breath" on exertion, but continued working until two days previously, when giddiness and vomiting developed. On attempting to rise next morning he lost consciousness and fell. While under observation the patient had numerous epileptiform attacks with marked slowing of pulse. The apex beat was in fifth interspace just inside the nipple line. There was a slight mitral murmur. Sometimes ventricular beats were but 12 per minute and between them auricular beats of 78 were distinctly heard. There was at first Cheyne-Stokes breathing, but this later disappeared with diminution of the heart block.

Four types of transient heart block are described by Krumbhaar: (a) transient partial A-V block of myocardial origin, occurring during an exacerbation of acute "rheumatic" carditis, varying with the degree of arthritis, yet responding to atropin; (b) transient complete A-V block, due to digitalis and temporarily reducible by atropin to a 2-1 rhythm; (c) the development of defective conductivity in the right branch of His' bundle in an old man suffering with arteriosclerosis, chronic myocarditis and anginoid symptoms; (d) transient periods of prolongation of the P-R interval (to more than 0.3 second) without adequate cause in a young adult male who was also the subject of paroxysmal tachycardia of auricular (or sinus) origin occurring independently of and not affecting the state of the conductive system.

Four cases were recently reported in detail by Blackford and Willius of the Mayo Clinic: (1) Male of forty-two, no history of "rheumatism," tonsillitis, chorea or lues. Following diphtheria at twenty, occasional palpitation and rapid heart action noted. Slow pulse, at times, for eight or ten years before coming to clinic. Two and half years ago, during attack of measles, pulse

was 42 and since ranged from 37 to 40. He gradually became dyspneic and unable to work, but had never been confined to bed. Two weeks previously "sinking spells" began; he would suddenly become dizzy and heart seemed to stop. There was momentary unconsciousness without convulsions; sometimes ten to twelve attacks daily. Blood pressure 112-60, pulse 36; heart six inches to left; loud, harsh, systolic mitral murmur with heaving apical impulse. Diagnosis, bradycardia with mitral lesion, probably double, and myocardial insufficiency. Electrocardiogram showed complete dissociation; auricles 71, ventricles 36. Wassermann negative. (2) Male of sixty-four, no tonsillitis or "rheumatism"; denied venereal infection; "grip" twenty years ago followed by dyspnea and "pounding of the heart." Three years previously had dizziness and was treated for "heart trouble." Edema of legs noted two years later. Recently fainting spells, possibly apoplectic. Slow pulse four months; exertion caused dizzy spells lasting few seconds. Heart five inches to left, one inch to right; pulse rate 30; loud systolic murmur at apex. Eye-grounds showed arteriosclerotic vessels and hazy discs; brachials sclerotic. Electrocardiogram showed complete block; auricles 66; ventricles 32. Wassermann negative. (3) Male of sixty-one, Neisserian infection twenty-five years ago; lies questionable. Wassermann negative. Complained of stiffness of spine and dizziness on exertion. Cardiac history four to six years' duration; attacks of "all-gone feeling" and momentary dizziness, usually following exertion, but occasionally at other times. General condition fair; pulse 36 to 40. Heart four and one-half inches to left; loud systolic murmur over entire pericardium. Marked spondylitis deformans and large right branched kidney stone. Electrocardiogram showed complete block; auricles 107, ventricles 41. (4) Female of twenty-five, married, no venereal history. Wassermann not taken. Repeated attacks of tonsillitis. Three years ago fell and struck lower back; pain severe for week, then relieved by discharge of a large quantity of pus from rectum. Following week tonsillitis, repeated vomiting, "fainting spells," pulse 28. Year later patient in fair health excepting dyspnea. One morning she suddenly fell and remained unconscious nearly an hour;

cyanosis and slow pus. Since then repeated "sinking spells" with slow pulse usually following exertion. Heart four and one-half inches to left, pulse 42. Blood pressure 158-78. Heart beats irregular, faint systolic murmur at apex, slight transmission toward axilla. Tonsils moderately enlarged, marked evidences of chronic tonsillitis. Electrocardiogram first day showed ventricular rate 60, due to repeated ventricular extra-systoles, auricles 92.

The authors state that in addition to these four cases there have been five other patients observed, but not treated since November 1, 1914. The total number of cases, three women and six men, may be summarized as follows: One was twenty-five years old, two were over forty, one over fifty and five over sixty. One gave history of "gonorrhea," none gave history of syphilis; six showed negative Wassermann. Only one gave history of "rheumatic" fever; two others admitted vague "rheumatic" pains; in two the trouble seemed to have followed diphtheria, and "grip" may have been the etiologic factor in four. Seven of the nine patients gave history of Stokes-Adams syndrome, and all but one had cardiac murmurs. Three of these showed clinical predominance of an aortic lesion; five predominance of a mitral lesion. "Of the seven patients concerning whom word has been received recently, three are dead, all dying in typical Stokes-Adams attacks."

"We know that the vagus gives branches to the sinus node, to the auriculoventricular bundle, and that stimulation causes slowing of the heart by inhibition of the sinus and of the conducting bundle. The cardiac accelerator nerves have a similar distribution, but they act to increase the sinus rate. So far as has been proved, they cause no increase of the idioventricular rate. Digitalis is recognized as stimulating the vagus and thus slowing conduction in the bundle, tho therapeutic doses often produce no rate reduction in a sinus rhythm or tachycardia. No drug or measure is known which increases the idioventricular rhythm; yet such result is manifestly desirable in chronic heart block. Thyroid extract will excite a tachycardia in the normal organism. Such effect is produced probably by action on the accelerators or a direct stimulation of the sinus node, tho no experimental work is

available to prove this action. A large mass of clinical evidence without laboratory proof shows that thyroid extract markedly affects the myocardium, as illustrated by the irritable and rapid action, with concomitant myocardial degeneration of the thyrotoxic heart. During the examination of a case of chronic heart block we thought of attempting to increase the idioventricular rate by the administration of large doses of alpha-iodin, the active constituent of the thyroid which Kendall has isolated recently. The administration of this drug has been followed in four cases by marked improvement in the patients' nutrition, associated with increased ventricular rate and cessation of the Stokes-Adams syndrome, tho one patient has since died." (Blackford and Willius.)

Digitalis was administered in one of the cases (case two) in the foregoing series. The daily dose of alpha-iodin varied from one-half to three milligrams. I have had no experience with this drug in the treatment of heart block, but based upon the results obtained by Blackford and Willius, its administration would seem advisable in cases of this kind. The authors conclude their admirable paper as follows:

(1) Alpha-iodin quickens the idioventricular rate in complete heart block; this is followed by marked subjective relief to the patient; the drug must be pushed to tolerance and the dose then reduced to the largest quantity which may be taken without discomfort; the auricular rate increases much earlier and to a much higher figure proportionately than the ventricular rate.

(2) In nine cases of complete heart block, eight patients gave evidence of definite valvular disease, mitral lesions predominating; the ninth patient had advanced nephritis.

(3) In none of the nine cases was there a probable venereal etiology.

(4) Six patients gave a history of probable etiologic infections with the streptococcal group, *i. e.*, chronic arthritis (one case), "grip" and tonsillitis (five cases); diphtheria seems to have been responsible in two instances; the ninth patient gave no history of previous infection, but at autopsy a large (mulberry) calcified nodule was found involving the bundle and one cusp of the aortic valve; no other pathology was evident.

(5) Digitalis should be used in all cases of chronic heart block in which there is evidence of myocardial insufficiency.

(6) "We do not know the effects of long-continued administration of large doses of alpha-iodin in patients not suffering from thyroid insufficiency; therefore we believe that for the present this medication should be used only to relieve the Stokes-Adams syndrome in chronic heart block." (Blackford and Willius.)

Heitz presents Routier's classification of auriculoventricular dissociation as: (a) simple heart block, (b) complete dissociation, and (c) partial dissociation, and suggests that the trouble may be in conduction or in generation of the impulse; that experimental research has demonstrated a certain connection between cardiac fibers of the sympathetic and conduction of the impulse. Routier arrested conduction by "nipping" with forceps the bundle of His in dogs. The auricle beat was 140, the ventricle 55, in one experiment. "Then an injection of epinephrin was made and in twenty seconds the auricle beat became 115 and the ventricle beat also 115, showing that the heart block had been overcome; as the effect of the epinephrin passed off, the auricle beat increased to 120 while the ventricle beat dropped to 42."

Atropin had no appreciable influence on total heart block in one of Marui's cases. In another the ventricle beat increased by eight pulsations, showing with even total heart block the vagus may yet exert a certain control over the ventricle. Injection of epinephrin in a male of fifty-nine induced the bigeminus picture. The extra systoles with the total heart block are ascribed to stimulation of the accelerator nerves.

Danielopolu and Danulescu found experimentally that where incomplete dissociation of auricular and ventricular beats existed, injection of epinephrin caused almost

entire disappearance of the heart block and pronounced increase in the pulse rate. "To antagonize clinically the manifestations of cerebral anemia, sometimes fatal, which occur in attacks of heart block, we should resort to epinephrin instead of atropin as has been customary, the former exerting a far more marked and prompt accelerating action on the ventricles."

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TUBERCULOSIS; SOME REMARKS
ON ETIOLOGY ON TREATMENT.

BY

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"Tis a true saying that "It is a long road that has no turning," especially if the road of yesterday is walked upon in the same direction for any length of time. Let us turn about and review the familiar sign posts we have passed in the study of tuberculosis. Before turning, however, let us ask these pertinent questions: Why have we been headed in this direction? What was our goal? We were headed in a certain direction because Prof. Koch discovered that each little tubercle in the lung or other tissue contained one or more acid-fast bacilli, that they were always present in patients with tuberculosis, that when such bacilli were introduced into living animals, the bacilli multiplied and formed more tubercles, that the animal so inoculated finally died of phthisis the same as the human being, the original source of the infection. We started on the road in this particular direction to hunt down this bacillus to its original starting place; to find something that would destroy the bacillus either within the human tissues or without, wherever it might be found. We had become convinced that the tubercle was the result of the bacillus. If, therefore, the bacillus could be traced to its original source, its starting place and there completely annihilated, the world would be freed from this bacillus; incidentally the White Plague would be no more, and the crusades, all of them leading in the same direction, to the same goal would be unnecessary. For the past thirty-five years we have traveled this road unceasingly, until now we find ourselves in the wilderness.

Prophylaxis of Endemic Goiter.—Klinger (*Correspondenz-Blatt fur Schweizer Aerzte*, April 20, 1918) advocates that at least 2 or 4 mg. of iodine should be given to each person daily in experiments in the prophylaxis of goiter. Any amount less than this is futile. Even this totals only from 1 to 1.5 gm. per year.

Early in our travels we met certain sign posts, each one instilled new hope, new energy to keep on. Of late these benevolent sign posts have been getting fewer and fewer, we have become confused and are wandering aimlessly, not knowing why or where we are going.

Before we are hopelessly lost in the mire and quicksands, following phantom lights, let us halt, nay let us turn back; let us again pick up the old familiar sign posts and then pursue the road in exactly the opposite direction. The entire road that we have been following led to pathology. Every milestone that we passed brought us nearer and nearer to pathology. Now we realize that all of this pathology was merely the end result of something that had preceded it. Every adequate as well as every inadequate effort on the part of the system to overcome the invasion of this bacillus left its traces. At the autopsy we found bodies of men well advanced in years, who during their lifetime never suspected tuberculosis, yet here they presented the unmistakable signs of healed lesions. Sometimes it has happened that the laboratory report showed that a certain patient's sputum was loaded with the bacilli, yet the patient lived on and finally recovered and we labeled that patient as a "closed lesion." The sign posts on our road led us to believe that nearly all of the tuberculosis was the direct result of milk contamination. We finally traced this bacillus to the cow. The veterinaries of the country were enlisted and every cow was injected with tuberculin. If it happened that such a cow reacted to the test, she paid for it with her life. Fishberg in AMERICAN MEDICINE, August, 1915, says: "A cow which reacts to tuberculin in a stable with cattle known to be free from tuberculosis often brings about an infection of the cattle, so that ultimately they all

become reactors, altho it cannot be proved that the cow which disseminated the bacilli had any physical signs of the disease." Now we know that the cow bacillus never caused a single case of human tuberculosis. Not content with that it was discovered that the timothy or hay bacillus was an acid-fast bacillus, the extermination of which, however, seemed too big a task to even start upon. Still later the smegma and perhaps a host of other bacilli, one looking as much like the other as two peas in a pod, were discovered; they were accused, tried but acquitted. Then we came to the conclusion that the tuberculin test was fallacious, because 95% of human beings responded to it, and what was worse that the more virulent the disease the less the response; this test was of course abandoned. We also discovered that the bacillus or even a billion of them were entirely harmless, but that they did pour out a certain toxic material which was responsible for the sickness and death attributed to tuberculosis.

One of the best things that we did discover on that pathologic road was the fact that this bacillus had a particular aversion for the blood. It seemed to prefer blood-poor areas, hence it was most frequently found in the unused or upper portion of the lung, the glands, the skin and the bones. Wherever there was anemia, there was the bacillus, wherever there was a bacillus, there was anemia. Whether the anemia preceded or whether it followed is of little consequence, it was pathologic in either case.

Retracing Our Steps. Now that we are retracing our steps let us stop now and then to read the sign posts: Edward R. Baldwin, (*New York Medical Journal*, January 23, 1915) summarizes a very interesting article on Immunity in Tuberculosis as follows:

"We have seen that there is no natural immunity to tuberculosis in man or mammal; that there is no true immunity of races; that inheritance tends rather to an increased susceptibility than to an increased resistance; that long continued non-exposure of a race to infection increases the susceptibility of that race, while abundant exposure for many generations leads to a marked increase in the frequency of acquired relative immunity; that the mild infections of human beings in early life constitute the most powerful means of relative protection in adult life. From this latter fact we may conclude that in the future there should be a continued decrease of the severer cases of tuberculosis in man, accompanied, probably, by an increase in the frequency of the case of mild and minor infections."

If Baldwin is right, we must give up studying the pathology if we are looking for a cure. Instead, we must study the physiology of our patients; it is the physiology that produces recoveries and cures. Tubercle formation is a physiologic process, it is Nature's best and only weapon with which to overcome these bacilli, but more of this later.

In Public Health Reports, Dr. George M. Kober considers the influence of dust on the prevalence of disease, particularly tuberculosis.

The tuberculosis rate among 472,000 males in the United States exposed in fifteen occupations to the inhalation of organic dust was 2.29 per thousand, against a rate of 1.55 for all occupied males; 42.05 per cent. of the deaths of printers, lithographers, and pressmen who died at ages between 25 and 44, were from tuberculosis, as compared with 21.8 per cent. for farmers, planters and overseers.

In Berlin, as shown by Sommerfeld, the average tuberculosis death rate was 4.93 per thousand of the population. In non-dusty trades it was 2.39, and in dusty trades 5.42.

In Vermont in towns where granite and marble cutting is carried on, in a population of 34,899 the tuberculosis rate was 2.2 per thousand, against a rate of 1.3 for the entire state.

Kober says it is estimated that "industrial workers, constituting about one-third of the population, contribute about one-half of all the deaths from tuberculosis. By factory sanitation and effective methods for the prevention and removal of dust, fully one-half of these lives could be saved. That this is not speculative is indicated by the figures from Solingen, Germany, where the population is made up largely of employees in the cutlery industry. The mortality had been reduced from 20.63 per thousand in 1885 to 9.3 per thousand in 1910, and the tuberculosis rate from 5.4 in 1885 to 1.8 in 1910 per thousand population. In the German cement works also, diseases of the respiratory organs have been reduced from 9.3 to 3.3 per cent. after the installation of dust preventing apparatus." (*Journal A. M. A.*, Jan. 1, 1916.)

Figures do not lie, but statistics properly manipulated will prove anything. It will be admitted that dust, especially such dust as found in granite cutters' places and cutlery institutions, is by no means conducive to good health or the prolonged action of life. When we look back and recall the fact that in all probability 95% of all these workers had contracted tuberculosis during their infancy, had recovered from the infection and upon entering the granite works or the cutlery shops were nothing more or less than "closed lesions" our surprise is not that there is such a high percentage of tuberculosis cases, on the contrary we wonder at the extreme smallness of the percentage, we marvel and wonder not why so few die, but why so many escape. If then, the dust laden atmosphere is removed, it is perfectly natural that there should be a less number, who would otherwise by the inhalation create an anemic area in their lung tissue from a fibrosis.

That these dust exposed workmen were inhaling the germs is of course not claimed, so that if they developed tuberculosis they must have either had the bacillus *prior* to or received it *later* on. Just what a dust laden atmosphere has to do with tuberculosis we see by the next sign post:

Tubercle Bacilli in Air and Dust.—Kaurin inoculated animals with culture mediums long left exposed to the air in rooms occupied by the tuberculous. Also with dust from the toilet rooms, hall and other parts of the sanatorium where the inmates congregated. No acid-fast bacilli could be detected in any of the seven groups of tests, and none of the fourteen animals showed any sign of infection. These findings harmonize with the experiences of the seventeen years during which none of the attendants or other persons connected with the sanatorium has contracted tuberculosis.

The bacillus of Koch does not thrive well outside of the human body; neither does it thrive in the blood of the patient.

Kessel has lately made new attempts to grow tubercle bacilli directly from the blood, and to demonstrate their presence by direct microscopic examination and particularly by careful direct inoculation of susceptible animals with the blood from patients with advanced pulmonary tuberculosis. *All with negative results.* Kessel admits that this outcome in forty-seven cases examined by him does not conclusively prove that tubercle bacilli are never present in the circulation; but they strongly suggest that a bacillemia such as is present in other infectious diseases is at least uncommon in pulmonary tuberculosis even in advanced stages of the disease. It may be that from time to time tubercle bacilli are washed into the circulation from a pulmonary focus, but it is shown by experimental

evidence from the effect of direct intravenous inoculation that in such an event they rapidly disappear from the blood.

On the contrary I have called attention to the fact over and over again that the bacillus of Koch can only thrive, multiply and produce the disease "phthisis" in a blood-poor area. Anemia must either precede or be concomitant with the entrance of the bacilli.

To answer academically the questions, Where do the germs come from? How do they enter the system? would lead us too far from the present theme. I will however venture a bold guess. Ninety per cent. of the entire human race is infected with the bacillus of Koch during the pre-natal existence. We no longer believe that the placenta acts as a barrier to germs, we may still be right in saying that the *disease* is not inherited but surely a disposition to the disease. There is no reason why the physiology in the fetus should not act with the same vigor and under the same laws as in post-natal life. Physiology is physiology, it builds up the fetus from the union of two elements into one perfect human individual. Physiology has performed intra-uterine amputations, so there is no good and valid reason why an infection with the Koch bacillus could not take place and at once be followed by *physiologic protective measures*. In this way we can account for some of the natural immunity. Again there is no reason why the system might not fail in its curative attempt, that would produce off-springs more or less started on the road of a future tuberculous "diathesis."

Personally I am not a believer in the infection from person to person or from the tuberculous to the healthy. Yet there is every possibility that if an offspring came into the world entirely free from any and

all tuberculous taint, it would of necessity become promptly infected.

"I have elsewhere shown that no intimate contact is necessary to transmit the disease among persons who have not met with tuberculosis before." (Fishberg: *Tuberculosis and Immunization*, *N. Y. Med. Jour.*, Sept. 12th, 1914.)

"Given a virgin soil and a race of bacilli already adapted to the species, an initial infection takes place with little hindrance from the non-specific defensive powers. The ultimate survival of those who acquire a relative immunity will tend to diminish the severity of the disease, but many generations will be required to accomplish this." (Editorial, *Jour. A. M. A.*, Sept. 18th, 1915.)

In such infections, the patient usually recovers, is tubercularized and no one is any the wiser. Many of the "ephemeral fevers" of early infancy are no doubt due to the reaction of the system to the invasion of the tubercle bacillus, the forming of the tubercles and the overcoming of the toxemia produced by the germs. Such a patient is now tubercularized, a more or less lasting immunity has been acquired. Such a tubercularized subject is not freed from the bacilli, they simply have been encapsulated, they have been made harmless, they have been surrounded by certain groups of cells forming the tubercles.

Should anything happen in later life, whereby the natural resistance of the body is lowered, where anemic areas are produced, these tubercles may give up their lime salts in cases of acidosis and so liberate the germs. A new infection with the same old germs might be produced and on account of physical changes the patient might not be able to again form the "tubercles," tuberculization could not take place, but instead we would have a case of the disease, "phthisis."

Tuberculosis—Tuberculization.—A tu-

bercle, as we view it in its final analysis, is a nodule 1/10 to 2mm. in diameter, found in all parts of the body. Favored sites are the apices of the lungs, the glands, the skin and the bones. We notice at once that all these areas are not what is termed "vascular." As a rule tubercles do not form readily in vascular areas, yet every tubercle is formed directly from the elements contained in the blood. Let us trace a tubercle bacillus after having gained entrance into the human body. The germ is a foreign body, and as such evokes when proper response is made a reaction by the system for its expulsion. The bacillus itself on the other hand pours out a certain toxin, the effect of which is to cause an anemia in the immediate neighborhood. This anemia is favorable to the future existence and multiplication of the bacillus. Under ordinary circumstances the tubercle bacillus is anaerobic but may for a time acquire aerobic properties. Anemia with its lack of oxygen favors the prolongation and the multiplication of the germs. When such a germ, now as a foreign body, is acted upon by the system, the first thing that happens is the formation of a zone of an inflammatory area surrounding the germ. A leucocytosis and a diapedesis follow. Giant cells are formed in a circular manner enclosing the foreign body. As soon as this is accomplished, the blood vessels are obliterated and new ones form on the outside of the wall of giant cells. The previous process is repeated, only instead of giant cell formation we have a deposit of oval cells; they are intended for strength and durability. Again the blood vessels are obliterated and a new vascular zone is formed around the shell of oval, epithelioid cells. The third layer of cells is composed of lymphoid corpuscles which are capable under favorable circum-

stances of enmeshing among themselves lime salts. When these three layers of cells have been completed, the bacillus of tuberculosis is as securely locked in as a prisoner in a stone fortress. *In a completely formed tubercle there are no blood vessels nor lymphatics to communicate with the center.* Neither is there left any avenue of escape for the bacilli except *in toto*, tubercle, bacilli and all.

Tubercle bacilli never appear in the sputum excepting for two reasons: *First*, the system fails to respond to the foreign body irritation, it does not form tubercles, there is no tuberculosis, no tuberculization. The bacilli multiply rapidly, poison the individual cells of the system and cause the disease "phthisis."

Secondly, the system may have responded and held the disease in abeyance until the system lost its resistive power, the tubercles were drawn upon to furnish much needed lime salts elsewhere, the rest of the tubercle broke down and liberated the germs. The germs multiplied under most favorable conditions and "phthisis" was the result.

Phthisis Therapy.—*Tuberculosis and tuberculization are the great factors in phthisis therapy.*

The formation of tubercles is the only physiologic and natural prevention of phthisis, it cannot be improved upon. Our whole idea in therapy is not how can we *prevent*, but instead how can we *produce* and augment tuberculization?

A healthy, normal human blood contains all the elements necessary for the production of the tubercles. The production and the formation of the tubercles is a physiologic process and not a state, it cannot be initiated or produced by artificial means.

We can, however, assist the system in the carrying out of this physiologic process.

The farmer cannot grow potatoes or wheat, but he can till the soil; he can introduce into the soil all such elements as Nature requires for the growth of the plants; he can produce artificial heat and moisture as in a hot house, but the actual process of growth cannot be imitated by artificial means. Phthisis therapy resolves itself into the several kinds of therapeutic measures which are usually requisite for the production and the maintenance of good health.

The Local or Pulmonary Treatment.—

A high frequency apparatus of low voltage but high amperage is required to furnish the *diathermia* for the local treatment. The patient is connected to the terminals of the apparatus in such a manner that the electrodes cause the current to pass thru the involved lung area. The entire chest assumes a heat of 104-106° F.; this is allowed to run for 40-60 minutes either daily or at least on alternate days.

The capillaries of the lung tissue are dilated, active hyperemia takes place, tubercles are formed rapidly. At first expectoration seems to increase, later it decreases, the bacilli disappear from the sputum, not because that they have left the system, but because tubercles have been formed and the germs are no longer free in the tissues. Clinically the patient has ceased to show any manifestations of the disease while the X-ray shows a greater deposit of tubercles than before treatment. If treatment is continued even the tubercles are expectorated, healing takes place by fibrosis or scar formation much after the manner of artificial lung compression, only this lung is as large as ever and performs normal physiologic function.

Tuberculosis is therefore the alpha and the omega of phthisis therapy. It is pri-

marily a wasting disease, rest is of even more importance than motion.

Hydrotherapy.—Since a great deal of dependence was placed upon the blood and its elements it seems but natural that anything which tends to ease the work of the heart and at the same time increase the circulation must be of especial value in this disease. The patient is ordered to take a bath every evening at 105° F. lasting from 20-30 minutes. During this time he may partake freely of cooling drinks such as water, lemonade, orangeade or even a small quantity of wine in water is not objected to. At the end of 20-30 minutes a quick cooling bath and a rub down and the patient is ready to retire. The object of the bath is complete relaxation of the entire external vascular system. The effect is very analogous to violent exercise minus the physical effort, the blood becomes heated, a sort of autogenous vaccine injection is simulated. The patient by this means practices the best autoserum therapy. This bath is repeated in the morning upon arising after which the patient again retires for one to two hours.

Drugs.—If there is one disease in which drugs have failed to show results it is in phthisis pulmonalis. Since we have retraced our steps and are no longer trying to change or influence the existing pathology it is perfectly clear that drugs as such could have no beneficial influence. Even the injection of tuberculin is of questionable value. Theoretically such injections of either the dead bacilli or the metabolic substances of the living germs seemed to offer some hope and personally I am not in a position to condemn them, neither can I recommend them for the simple reason that they have seemed entirely unnecessary. *Why should a physician resort to a doubt-*

ful procedure when positive results are obtainable by perfectly natural means. Before dismissing the question of drug therapy for consumption, it is well to call attention to one phase of medication. During the last few years we have learned a great deal about "intravenous medication." Since the economy must react to everything put into or on the body, there is not the slightest doubt that there are also substances that may be administered which can and do influence the forces of Nature for its good. The intravenous route certainly spares the digestive powers and this is worth a great deal in every case of consumption. More lives have been lost in this disease by the administration of drugs per mouth than have ever been benefited by it.

We cannot in this instance deal with the "How and Why." The constituents of the blood are increased by the intravenous administration of iron and arsenic as prepared by the Loeser intravenous medication process; there is no doubt of its efficacy to rapidly increase the cell count in cases of anemia. Let us bear in mind that we are not using the iron and arsenic intravenous solution for the cure of consumption, but we do use it as an aid and a very material one for the production of that kind of blood so essential in the production of a physiologic cure of phthisis.

Exercises.—Dr. Knoph in his interesting treatise on this disease has laid down certain rules to be followed in exercises. As a prophylactic measure they are most valuable, again later on when the patient is convalescing, carefully observed rules in physical exercises are helpful. The most valuable of all is deep breathing. It is the only one that should be made use of during the time while the patient is under active treatment.

Diet.—Since the tubercles must be produced from the elements normally found in the blood, it seems only pertinent to see that the blood composition is normal at least. Again since the structure of the tubercle depended upon the amount of lime salts, it seems reasonable that the blood must contain these necessary elements abundantly. Milk is a perfect diet. Bovine milk with some slight modification may be made to resemble human milk to all intents and purposes. Sterilization and pasteurization are make-shifts; while they are supposed to kill pathogenic germs, they do so at the expense of the vitamines present.

A patient, depending upon the age, digestive power, etc., requires a certain amount of fresh, good milk daily from a healthy herd (clinically healthy). Such milk and cream contain all of the elements of the normal blood. In some special cases where the patient seems to lack in recuperative power, the yellow or the yolk of the raw egg may be added to such milk. This must not be done with a view of fattening the patient.

At least twice weekly raw oysters, or raw oyster broth must be partaken of. Clams, oysters and their broth are not given for their food value because they have none, but they do contain the earthy salts so necessary for the proper tubercle construction. The administration of the artificially-produced lime salts does not compare with that of the raw oyster or oyster broth. It is made by Nature according to natural laws, it is prepared for immediate absorption and assimilation. Of the above mentioned foods the patient must partake according to his needs, each case is a law unto itself. The rest of the diet may safely be left to the patient, he should neither stuff nor starve. A goose may be stuffed

and fattened, a phthisical patient is a goose if he attempts it.

Prognosis.—In the *N. Y. Medical Journal*, Aug. 22nd, 1914, appears the Presidential Address of Dr. Van Rensselear, the Medical Director of the Albany Tuberculosis Camp, entitled "Diathermia in Phthisis Pulmonalis." Doctor Van Rensselear in this address reported to the Therapeutic Society of this state that with this system of treatment the recoveries or the apparently cured amounted to the amazing rate of 69%.

At the Albany Tuberculosis Camp this system was given a thoro trial in the following manner: All of the patients regardless of the conditions were divided into three groups. One-third received the usual hygienic treatment in vogue in all of the sanitaria. The recoveries were 15%. The next third were given the same treatment plus tuberculin injections. The recoveries were 15%. The last third received the usual hospital care plus the diathermic method of treatment; it was in this one-third that 69% of recoveries took place.

Two points are worthy of our consideration: In the first place the Albany Tuberculosis Camp is a public institution, the selection of cases therefore not possible. Secondly the results obtained by Doctor Van Rensselear were obtained by instruments far inferior to the ones in use at the present time. In my own experience during the past eight years, both private and institutional, the percentage of actually closed cases (cured?) is well above 90%. If the patient is really willing to be cured, not by the prestidigitator's process but, by physiologic methods, there is no reason why every case of phthisis during the first and frequently during the second stage cannot be converted into a closed case.

MYOPIC SPECTACLES FOR HYPER- OPIA.

BY

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The mistake suggested by the title is far more common than is suspected. It has long been the routine habit of the oculists and opticians of a great nation "over there," and is altogether too common over here. It is especially the medical crime of the refractionist who calls himself "ophthalmic surgeon," and of the optician who "can prescribe glasses just as well as the oculist." It is based on the blunder of mistaking the kind of ametropia present in the patient's eyes and this is brought about by the non-use of a mydriatic or by the fact that low-power myopic lenses may at first seem to the patient to give higher acuity of vision even in considerable hyperopia. It is in a word malpractice, altho much practiced. In at least one European nation it has largely contributed to its national disaster, and with our thousands of nonmedical and other "refracting opticians," it is lowering our own national efficiency. A case in point:

On December 12, 1916, a man 28 years old came to me saying that he had "always had good health." This report is not unusual by patients suffering much, and I at once questioned him more closely as to its truth. He corrected himself by saying that ten years ago he had come to the conclusion that his eyes were responsible for his "round shoulders" and other symptoms. Quizzing also elicited the vague statement that he had had headaches at 14 or 15 years of age, "frontal, and almost daily"; and, also, that he had had some neuritis, but not now. A ticket agent, and "reads all the time," was illuminating.

He was wearing, at this visit, the following lenses prescribed by an "oculist":
R. Sph.—0.25 Cyl.—0.25 ax. 90°
L. Sph.—0.12 Cyl.—0.87 ax. 180°

Even without a mydriatic it was only a minute's work to demonstrate that the ametropia was not myopic but essentially hyperopic. There was, of course, a strikingly evident and powerful accommodation. Temporary spectacles were ordered to reduce the hypertrophy, the amblyopia, etc.

Later visits and persistent quizzing brought the confession that the patient had previously gone thru eight operations for anal fistula, and that he had also consulted "a dozen or more" oculists, not only without relief of any symptoms, but with increase of suffering, systemic or local. He was tall, yet weighed only 150 pounds. He was cynical as regards any general bodily diseases being caused by eyestrain.

Many general physicians consulted in the past agreed that he "had consumption," "was going down all the time," and was "doomed." The circumference of his waist was 28 inches, his collar was No. 14; and he was "a failure," "getting daffy," morbid and hopeless.

In August, 1917, there was such improvement in the general and local diseases that after thoro mydriasis, I found the following error of refraction, and prescribed:

$$\begin{aligned} R. + \text{Cyl. } 0.87 \text{ Ax. } 90^\circ &= 20/20 + \\ L. - \text{Sph. } 0.37 + \text{Cyl. } 112 \text{ Ax. } 105^\circ &= 20/20 \end{aligned}$$

Use of these lenses, as demonstrated later, has revolutionized the man physically and psychically. He has gained 60 pounds, and "in some danger now of getting fatter." He is in most perfect health. Instead of a 14-inch "loose" collar he wears one of 16 inches. His trousers-belt is now 42 inches, some 14 inches longer than before. Instead of "going daffy" and always "forgetting things, and mixed," he is now "clear-headed, happy, and confident;" and instead of a "business failure," he has secured "a splendid job" in a large city.

One swallow certainly does not make a summer; but there are no greater blunders of ophthalmology than in the diagnosis of ametropia.

Almost all pathologic conditions of the eyes are caused by uncorrected and mal-corrected ametropia. The greatest of all causes of systemic diseases, both functional and organic, may be and often are the result of ametropia, uncorrected or wrongly corrected.

There are therefore millions of failures in business and in life directly or secondarily arising from "errors of refraction." Frequently the error of refraction is really hyperopic but blunderingly diagnosed as myopic, and the organs of vision further abnormalized, and lives ruined by the prescription of glasses which should disbar the prescriber from practice. Hyperopic astigmatism in the patient may to a psychically blind oculist be mistaken for the myopic variety, but the patient should not have his health and happiness ruined in double quick time.

ambulance in consequence of a fall. He had stumbled and struck his head against some boards he was carrying. The blow was not considered severe and he did not lose consciousness altho dazed and a good deal shaken up for a few minutes.

On admission both eyes showed well-marked ecchymoses. Nothing else noted except some evidences of shock. He remained in the hospital eight days. Slept well, complained of no discomfort. Temperature normal thruout. Lowest pulse record 60, highest 76. He walked about the wards for several days and was discharged seemingly well on December 12.

The same evening he was re-admitted, the ambulance being sent for because he was taken with severe chills, fever and headache. He had then a temperature of 105; pulse 104; respirations 28. His high temperature continued notwithstanding sponges for two days, falling to 100 on December 14. Pulse varied from 62 to 100. There was now noted a conjunctival hemorrhage in the right eye with slight fresh ecchymosis in the left lower lid. Cheeks flushed, respirations shallow and rapid. Some dulness in right lower lobe, with diminished breath sounds and crepitant rales. Pupils were normal.

December 15, temperature remained about 105°, the pupils became widely dilated and fixed. Patellar reflexes exaggerated. He had several severe chills alternating with profuse sweats. I examined him at this time and found paralysis of both third nerves, as also of the fourth and sixth. The right eye was slightly more prominent than the left. Bleeding beneath the conjunctiva and into the tissues of both lower lids well marked. Ptosis of the left upper lid. The upper nasal fossa on the left side was swollen, the right negative; fundus showed only blurred disc margins and fullness of the veins. Signs of recent bleeding from left ear drum.

I made a diagnosis of fracture of the base with septic infection of the exudate and blood clot. Later on the patient became comatose, and died the next morning.

Autopsy.—Inner table of the skull was very noticeably thin and friable. Abundance of pus and fibrin was found in the interpeduncular space, extending beneath the pons and down the spinal canal.

SOME INTERESTING BRAIN CASES.

BY

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Acute affections of the central nervous system are among the most interesting of the problems which confront us in any field of medical work, and the writer ventures to record the following cases which have recently been under his observation as embodying features of some note.

Case I.—A. W., aet. 32, a laborer, brought to the Lincoln hospital by the

There was a comminuted fracture of the cribriform plate, a fissure extending upwards and outwards for three and a half inches to the right supra-orbital foramen. Another smaller fissure of the orbital plate of the frontal bone joined these fractures.

Case II.—N. D., a boy of nine, was brought to the hospital after being struck by an automobile. The ambulance report states that he struck on his head and when picked up was bleeding from the nose but was not unconscious. The right cheek was discolored and there was ecchymosis of the right eye. Pupils dilated; right more than left. He remained in a semi-stupor in hospital for several days and then gradually cleared up.

I did not see this case until three weeks after the injury. At that time I found his right pupil widely dilated and not responsive to light. The consensual reaction was present when light was thrown on the left retina but lost when the reverse was tried. Left eye normal in every respect.

Right eyeball moved only down and out with complete ptosis of the right upper lid. Vision entirely gone even to light perception. The fourth nerve remained active giving movement down and outwards by the superior oblique.

The fundus showed marked grayish pallor of the disc and evidences of advanced secondary optic atrophy.

The diagnosis of fracture of the orbital wall with damage to the sixth, the optic and parts of the third nerve was later confirmed by X-ray examination which showed the line of fracture clearly in the orbital plate of the frontal bone.

The case was closely analogous to that just described but had the luck to escape infection. Probably the damage to the ethmoid in the first was a strong factor in favoring infection.

In this case the optic atrophy was complete with permanent blindness, but the third nerve pressure disappeared as the exudate and hemorrhage absorbed, resulting in complete clearing up of the ptosis and restored movement of the eyeball.

Case III.—L. M., a girl of seven years, was brought to Lincoln hospital in the ambulance with the history that for three days the eyes had shown some swelling of the

upper lids and later she had vomited everything ingested; suffered headache, and was drowsy.

I saw her soon after admission and found the left eyeball fixed and pressed forward in the orbit, lids swollen, the upper one dark in color, and the conjunctiva markedly edematous.

The right ball could be moved about but excursions were somewhat limited and the right lids were slightly puffy.

The child was in a semi-stupor but gave evidence of tenderness when the left eyeball was palpated.

Pupils were slightly unequal, the left being the larger, but both responded to light. Fundus showed no faults except some fullness of the veins.

The child had hypertrophied tonsils; ears normal; nose clean; no sign of infection or discharge from the ethmoids.

A diagnosis of orbital cellulitis with possible involvement of the cavernous sinus was made.

Next day the conditions had grown much worse; on the left side the proptosis so marked that I explored for pus in the orbit under ether anesthesia, getting none however. Neither could I find evidence of ethmoid disease at this time.

The child died next morning and we were fortunate enough to get an autopsy. This showed the cellulitis of the orbit with a few beads of pus here and there but no collection at any point. Cultures made from these showed only staphylococcus. The cavernous sinus was filled with an infected thrombus thruout.

The ethmoid cells were opened and found clear. There was no history of injury, previous illness, or of any ear or other focal infection in this case and the conclusion was that infection must have reached the diseased parts thru the ethmoid labyrinth, without causing noticeable damage en route.

Camphor in Influenza.—Narich and Burgeat (*Progress Medicale*, Nov. 16, 1918) laud the efficacy of subcutaneous injections of camphorated oil in treatment of influenza, especially the bronchopulmonary forms. They give from 2 to 6 gm. per day.

NOTES ABOUT MALARIA: ITS DIAGNOSIS AND TREATMENT.

BY

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New York.

Today, it is usual to make a sure diagnosis of malaria by a microscopic examination of the blood. If the malarial organism is found, well and good, because an accurate diagnosis can be positively affirmed and without risk of error.

But, when the protozoon malaria cannot be found, how then? It has been affirmed by Osler, that it can invariably be found if malaria exists, provided the research is careful and repeated. I have stated more than once, that I cannot uphold this absolute view—I grant that in many instances, we can find the distinct microscopic proof of malaria, but there are instances where I gainsay it. They are relatively rare, but they do occur. When they do occur, one is apt to believe either in pulmonary tuberculosis, or typhoid fever, for the while. Later, either one of these diagnoses may prove to be incorrect, or remain always somewhat uncertain, or doubtful.

Sometimes, the malarial organism does not come to the surface and we cannot obtain it unless we puncture the spleen and withdraw blood from it. At present, we are not permitted to do this, because of fear of causing peritonitis. Again, if quinine be given before the microscopic examinations are made, these will often remain negative. This fact is usually known by good practitioners, but should be referred to here by reason of its practical importance. I claim that the previous history of the patient, when microscopic examinations are negative and even if in addition the spleen is of normal size, should confirm the diagnosis

in not a few instances. At all events, if we still remain a doubting Thomas, we should invariably, with the history of a previous malarial attack, or even without this ascertained fact, put the test of treatment in the case.

To many today, quinine is the test meal. If quinine fails to relieve, there is no malaria, these wise men say. If quinine helps relieve symptoms, or cures the patient they simply shrug their shoulders—and repeat, well! quinine does well curatively, in many cases of wholly different nature.

Now, I affirm that quinine is no absolute test, either as to relief, or cure of the patient. What then is? In some instances, it is Warburg's tincture, or extract; in others, it is compound tincture of bark; in a few, it is arsenic, combined, or not, with iron and maybe some quinine. In those cases where the malarial poison has been contracted in South America, or the Isthmus, (formerly, called Chagres fever at Panama), I rank first and foremost, Warburg, especially when the attack is severe and resists quinine. In other cases, namely, where the malaria has been taken in the temperate zone of the United States, I rely very much upon the use of compound tincture of bark. But, to be remedial in certain cases, the bark must be given in sufficient and frequently repeated doses—a teaspoonful every two hours is often none too much.

I cannot emphasize the value of this preparation of bark too strongly. I have seen too many instances in a long practice where it was true, not to affirm its remarkable effects.

Arsenic in certain chronic cases, as a blood tonic, has indeed its value and I would not ignore it, but it should not be mentioned in the same breath with War-

burg, or Huxham's tincture of bark.

Of course, we all know the benefit to be derived from a change of climate—notably to the mountains and far away from the seashore. But this change does not always succeed. I have in mind, as I write, a young patient who came to the Adirondacks, after being dosed with quinine. The malarial attacks persisted until compound tincture of bark was given in sufficient doses.

I can but hope that what precedes may strike a responsive chord in the minds of a few old practitioners and indeed, among my juniors who are not victims of laboratory research, to the point where their mental vision in the practice of medicine has been woefully limited.

AMONG MEDICAL SPECIALTIES WHY NOT ONE OF HEALTH CONSERVATION?

BY

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The value of the human unit becomes so urgent under war conditions it might be worth while to consider the desirability of specializing as a conservator of health and physical efficiency, equally with that of a repairer.

Personally I should prefer, were it possible, to give my undivided attention to this realm of endeavor. The attempt already made has met with indifferent success, hence I may be better qualified to discuss the question from a practical basis than would a better man from a more academic standpoint. On the face of it there can be alleged no tenable objection to limiting one's

efforts to so obviously commendable an enterprise. Numerous groupings of special domains of medical industry are recognized; so much so that for example, in surgery there are perhaps a dozen clearly differentiated forms current.

A curious fact forced upon my consciousness by candid efforts in this direction is that the idea is unwelcome to the profession; they subject him to the suspicion of being a mere physical culture enthusiast or strenuous "athlete," or a proponent of one of the anathematized extra mural cults. The question has often been asked, "Are you a physical culture fiend, an osteopath or chiropractor or some such visionary?"

Such suspicions are not conducive to patience or humility—especially when to my counter question consistently made "will you kindly define what these experts do?" there is then revealed an abysmal ignorance of any or all of these or allied subjects; mere fatuous, baseless prejudices. Not only so but I am frequently able to retort "Why did you send such and such a patient to a gymnasium, to an osteopath or chiropractor or to a physical culture expert?" You might as well have sent the patient to a fashionable druggist and told him to get some good medicine with no expert instructions what to take, when or how much.

The fact of the matter is—as readily demonstrated—that the "laity," the public who constitute the sources of revenue to the profession of medicine, are growing suspicious of the drug fetish, many of the ancient and honorable medical traditions of treatment, often worn thin in spots. The public are becoming restive under the strains of adherence to outworn preferential beliefs to which many wide-awake but timid physicians can no longer confidently subscribe. Let me make clear my credo as

to the potency of some drugs.

I hold the opinion that drugs, some old and fully tried and some wonder-working new ones, are absolutely necessary to the saving and the conserving of human health and life; that they will be imperatively needed to the end of time. I use them with an abiding faith and get results which even in my state of enthusiasm for other remedial agencies often far surpass expectations. Of course I shall always use them when definitely indicated.

On the other hand I not seldom meet conditions most distressful, disheartening and disabling, in which no drug that I can learn of can by any conceivable action render the service required in the instance. What then? Am I to abandon the patient to fate? By no means. Hence it is my duty to find and use that remedy which shall achieve the desired result.

There is also the whole range of experts in spheres of activity with which I have only a distant acquaintance upon whom I can call when needed; who can and do supply me with expert guidance and counsel for the salvation of the patient. But the subject of these remarks is the enormous and expanding field of hygienic measures, conservative, constructive and reconstructive which, rightly chosen and judiciously applied, are just as competent to win victories within their domain, as are the uttermost potentialities of medication in theirs. "Let each man at arms select and use that weapon best fitted to his hand."

The conscientious conservator of human life and health should choose and apply those remedial agencies for which his taste, aptitudes, experiences and special training have qualified him. Let me, if it be, I am able to determine, select and apply hygienic remedies most efficiently—and devote my

energies to that enterprise. Let others do likewise in their spheres and thus outstrip me, reach heights of achievement to which I am a dub and a stranger.

Meanwhile, as a plain uncontrovertible fact, there are those whose minds react best to one or other group of intellectual stimuli, the objective being the same. Approach to any problem is not limited to one avenue, nor to two, nor ten, nor a hundred.

Some mentalities think best in terms of chemistry, some in psychotherapeutics, some in symbolisms, some in religious faiths, some in terms of biophysics. Moreover such separatists employing their type of mind do win opinions, even victories, which others could never parallel in the same line of endeavor. In different lines, consonant with their own type of mind and aptitudes, yet others can and do achieve every bit as much. The proportion of success is about the same in each instance.

Has not this principle of selected experts done splendid service in our armies?

Take, for example, the experts in mental hygiene (hemopsychiatry) as an example. Not only do these devoted specialists weed out the constitutionally unfit and thus relieve the nation from useless burdens, but choice is likewise directed for special work where a man of particularized attributes is most needed.

Also effort is made with increasing success to select surgeons in accord with their peculiar attributes and aptitudes and training and tastes to perform duties consonant with personal qualifications. In this the elements of selection are both as to individual make-up, conformation and type of mind, as well as to acquired characteristics. Moreover in the industries this selection of men in accord with differentiated characteristics is now an accepted procedure, a necessity,

leading to important productive economies and often assuring safety to others.

To return to medical specializations: While each and every competent practitioner must have the same or similar training in fundamentals, in essentials, wide diversities exist among individual trends, determinants and facilities. Every epoch adds to the burdens of the neophyte an increment of difficulties in mastering the whole field of scientific and practical knowledge and proficiency.

Cooperation is imperative. In well ordered hospitals this is brought to a high degree of perfection. Among the "field workers," the great army of heterogeneous practitioners, the primary assumption is that one man qualifies to fill the whole gambit of medical duties. In large cities adjustments take place in accord with opportunities, suggestions, deliberate choice; but only too rarely in strict accord with inherent aptitudes. Hence a large proportion of failures or only partial successes.

Come we now to the specific application of these facts the subject in hand:

Why not cooperate for the best advantage of the patient?

And why should not certain M. D.'s leave to others responsibilities which they are better qualified to assume and restrict their own efforts to the factors of conservation?

What should be the direction, the departments of remediation of a conservator?

Here I can best sketch out those particulars which my individual tastes, so far as my experience goes, enable me to judge of my personal qualifications.

Here at least is the domain in which I should elect to become expert, had I the ability: Let me confine my responsibilities to searching out the peculiarities of conformation mental and physical—the psycho-

physical totality—and determine where and how the individual requires orthopedia or orthobiotics, that is adjustment, readjustment, correction of minor deformations, original or acquired limitations.

How should a conservator of health set about appraising the status of a client?

We may begin by inquiring: Who are those likely to make use of such service?

They may be conceived as of two groups: Those who themselves realize a need for rehabilitation and those whom a physician comes to appreciate would be advantaged by a general survey of the case such as he might not have the leisure or special training to make. This course is coming to be recognized as the most economic, most advantageous for the patient and enables the personal adviser to proceed with confidence along the indicated lines to his own credit and advantage. Let it be clearly understood it is no disparagement whatsoever to the physician any more than it would be to refer the case to an eye, ear, skin, nose and, throat gynecologic or any other specialist. We simply have not gotten into the habit of recognizing the specialty of conservation.

In my years of service as assistant to Weir Mitchell I learned invaluable lessons in the desirability of the general all round survey of a problem. It was my privilege to take full notes of the cases, make such examinations as were within my capabilities, and submit my findings to him. Those who came under his care either made their own decisions as to why they should seek counsel or were referred by their physician who was kept in touch with the case thruout.

Whenever there is an esteemed home counsellor it is always more satisfactory to collaborate with him or to return the case with specific recommendations as might be desired. It is a well established fact that a

conservator prefers to assume only that kind and degree of control which accords with his point of view and to leave the residue, and also the responsibility of cure, to the family physician.

To be sure in my experience it occasionally happens I can set some maladjustments straight and thus remove the disability promptly. This might seem trespassing on the privileges of the home adviser, to "spoil his job." None but a narrow-minded and conscienceless man would feel thus aggrieved. To afford relief is the aim of all honest physicians. There are plenty of other fish in the sea; other clients.

To revert to experiences with Weir Mitchell: He was kept overwhelmingly busy, to the limit of his working power, and altho he worked only seven months of the year, yet made an annual income about twice the salary of the President of the United States. Hence both parties in interest were content; so indeed was the patient.

I constantly marvel that this view of what Dr. Mitchell jauntily called "practicing on the higher planes of professional satisfactions" is not more universally adopted. The patient usually came to appreciate his consultant as a valued friend and his home counsellor even more highly. Open competition to appropriate a patient is to the last degree painful and to be deplored on every count.

The first step in conservation is to come by a full personal and clinical history. The personal, the intimate data is of even greater importance than a mere category of ailments, weaknesses or diseased states. The primary consideration is to learn the type of make-up, the sort of man or woman it is who has got into the depressed, depleted or disrepaired state. This, so I learned from Dr. Mitchell, is best achieved by a leisurely

companionability, an entering into the hopes, fears, ambitions, the home atmosphere so far as might be deemed desirable, to walk with them; to eat with them; discuss affairs of the day, books, science, art, literature. Dr. Mitchell made a great point of reading his own poems aloud and encouraging frank criticisms. He claimed he could thus learn more in a few interviews of what he needed to know of their trends, tastes, methods of thinking, their queernesses, prejudices and the like, than by any other known measure, and at the greatest economy in accuracy of assessment of the patient as a whole.

His marvelous successes were due largely to just such comprehensive dealings with all aspects of person, peculiarities and means of getting at the directions for relief. Above all he appreciated how different types of confusions and distresses could be dealt with by cooperation with experts in various lines.

Dr. Mitchell was preeminently the conservator, the reconstructor, never content with merely affording relief or repair of the obvious. He led the client, the petitioner, to earnestly desire to become all that was in him to be. He fully appreciated and enjoyed, indeed compelled the use of physical training, always adjusting the measures to capacities, limitations and tastes, in particular to rid the individual of false inhibitions, of absurd prejudices.

In an intimate personal survey there will be found, in most instances, some localized or well defined, or feared, trouble leading the patient to seek counsel. This will serve as a text, a starting point for exploration. The conditions they "complain of" are noted seriously. Only rarely is their pet ailment the one for which they most need rehabilitation; it may however, point the way.

Often during the search some defect or disorder will be revealed entirely foreign to that which they are aware of. None of their precious "complaints" should be allowed to obscure the real, or main issue. This involves usually an anxiety psychosis, a depletion of energies, of dynamics or merely of perversions of good powers. Symptoms are important but they are often so mixed with psychopathies as to mislead.

When once the assumed or imagined, or the main disorder is localized and ticketed, the campaign just begins. Rehabilitation is a large order but it is the largest service a conservator can render. To refer again to Dr. Mitchell: His aim was uniformly to turn out the man or woman restituted, regenerated, made over, better able to take his or her place in the world and to do, and *wish to do*, a man's or a woman's work thereafter.

He displayed his highest qualities, in my judgment, in his brilliant apperception of the crucial points, the pet weaknesses, or the whimsical disabilities. These he thrust into the foreground of attention and demanded, or tactfully demonstrated, they should be ruthlessly overcome.

For the average physician, even one of a high order of trained ability, who does not possess such exceptional acumen or incisiveness a *complete survey* of personal, not merely clinical, history is desirable. By studying this repeatedly there will be revealed, in perspective, much not first appearing.

Long years of training in making anamneses for him helped me to devise a great time saver in the form of a preliminary history blank, so worded that the patient and family can fill this out themselves in pencil. I would strongly recommend some such method in all complex or protracted con-

ditions. Few physicians can find time to catechize a patient thoroly enough, but when the brief is made out for them, they can and gladly will, go over it, verify the personal understandings of the question, ratify the answers, or take up one or other significant point and search to the end of the lead so opened. Most serious mistakes have been made by physicians in omitting this precise, uniform and thoro history taking.

A most significant, yet apparently trifling, matter to the patient may be omitted unless directly challenged. Similarly, no physician, no matter how confident of his penetration and memory of what he should do, can always bring out every point except by some such memoranda.

Let me hasten to meet the objection usually made by those urged to use the preliminary history blanks. The task is by no means so burdensome. The patient, the family, or the home physician bears the brunt of it. They usually are only too glad to be thoro in so important a subject—themselves or one of their home group. Thus the task is at least painstakingly performed. Few essentials escape "the drag net" or the "fine tooth combing," as it is often signalized.

Moreover such self-searching serves to bring to the consciousness many half forgotten facts along feared or voluntarily, or unconsciously, suppressed. Moreover when "the names of physicians who then attended you" is called for (as constantly recurs in the blank), one can consult that physician if alive, and get the facts verified; a most important matter.

After the revision is completed by the consultant, whatever point demands special attention gets it. Fuller elaboration can be made; then the entire history is spread out for inspection. It may be objected to, this minute and emphatic self-searching leads to

hypochondriasis. No; because the role of the consultant is to evaluate the items and their entirety; to show how this or that point is disposed of, a condition cured perhaps; or it may have no present bearing. In any event the revelations furnish an exact text for explanation, for encouragement, for discriminative advice. It is by no means wise to launch out into reassurances when the data remain obscure, unclear, inadequately presented or understood. When the whole is revealed it is time—and not till then—to compel abandonment of erroneous or baseless fears.

Then follows the physical explorations. These should include removal of all clothing, bit by bit and with due tact. The exploration should include, in addition to the customary procedures, a tactile assessment of gross structures, of conformation, of postures, of local tension, tonic spasms, relaxations, rigidities, resistencies, immobilities, contractures, deep tendernesses, asymmetries and their relationships one to the other. Hence orthopedic or orthobiotic principles come in for important contributions, both in diagnosis and remediation.

Let me enumerate a few of the points which deserve attention, some of which too often escape.

Expression; revealing many significant points, type, make-up, shape, size, apparent age, confidence, timidity, self-esteem.

Voice, manner of speaking, phrasing, peculiarities of self-estimation.

Poise, posture (the position one is compelled to take); attitude (the position one habitually assumes), due to any limitations of movement, or error of development, to diseased states of the static mechanisms, to costume deformities, e. g., bad corsets, bad shoes, bad methods of applying clothes, etc., to inherent weaknesses, e. g., ptoses, adhe-

sions, to weak backs, weak or deformed bones, to feeble abdominal muscles, to waster logging of the abdominal organs, etc.

To occupations, to vanity, to apathy, to self-consciousness, to over-tension, to mental slouchiness and the like.

Note in particular the vertebral column, in respect to those points of posture and attitude. I would urgently recommend that observation be made of the backbone in its entirety, noting its relationships to the thorax, the neck, the pelvis, as revealing significant matters.¹

Here we have displayed the whole problem of body poise, equilibrium, of departures from the form and to what they are due. Palpation of the muscles, the paravertebral structures reveal tendernesses, edema or stagnation.

Much can be learned or reasonably inferred, before employing X-ray studies.

The tone of the internal organs; meteorism, movable cecum, areas of segments of flatulency, "gurgles," tenderness, e. g., old or quiescent appendicitis, fecal masses, etc.

Note the circulatory peculiarities, superficial and deep, of course the heart sounds, position, areas of dulness but not less the blood ptoses, the variations in blood pressure lying, sitting and standing.

Disorders of the Heart from Goiter.—

Goiter causes endocarditis, premature contractions, auricular flutter, auricular fibrillation and myocarditis. Sloan (*Med. Review of Reviews*, Feb., 1919) states that removal of goiter benefits or cures these conditions when it has caused them. Heart-block and defects in transmission of impulse are not caused by goiter and are not benefited by removal of a goiter that may be present.

¹ See paper AMERICAN MEDICINE, April, 1918—Spinal Significances.

HIGH ARTERIAL TENSION: TREATMENT OF HIGH BLOOD PRESSURE.¹

BY

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Two months ago I was called to see a female of sixty-seven who for some time had been having periodic attacks of epistaxis. I was asked to see her during one of these attacks. Her blood pressure was found to be 220 mm. Hg. No attempt was made to arrest the bleeding, and within half an hour it ceased spontaneously.

I would like to ask the members of this society the method by which they attempt to reduce the blood pressure under such circumstances. Examination discloses no evidence of cardiac disease, nor are there any renal lesions so far as can be determined by careful urinalysis, there being no albumin nor casts in the urine. There is some arterial hardening demonstrable at the wrist and also the elbow.

Iodide of soda was administered continuously for five weeks with no appreciable influence upon the blood pressure. During the last four weeks the tension has varied from 220 to 170, and at times there has been noted marked cardiac irregularity. Contrary to current teaching this has been improved by the administration of tincture of digitalis in five drop doses three times daily. The bromides seemed to reduce the blood pressure to some extent.

At a previous meeting of this society Dr. Leo Bloch called attention to the value of pilocarpine hydrochloride as an agent to reduce blood pressure, which he had seen in an article in the *New York Medical*

Journal. This has been prescribed in 1/40 grain doses three times daily, and seemed to have a beneficial effect by inducing mild perspiration. The patient is in fairly good physical condition, and the functions of all the emunctories are normally performed. She is still taking the bromides, twenty grains in a mixture of passiflora incarnata, after breakfast and supper. Why her blood pressure should be 170 one day, and another 220, I am at a loss to understand. She is a light eater, and for this reason the dietary has been increased rather than diminished as is the rule in such cases.

Some time ago I noticed in one of the medical journals an article recommending fibrolysin (thiosinamin) in doses of about 2 c.c. by hypodermic injection for the reduction of blood pressure. I wrote to Merck & Company of New York, asking what they thought about it, and they advised against the use of fibrolysin for the purpose stated.

I believe there are no drugs which will certainly reduce blood pressure. In this case at times the patient had occasion to worry and did not sleep well, and the following day her arterial tension would be higher. The bromides and passiflora incarnata seemed to have a quieting influence upon the nervous mechanism and cause her to sleep better, and in this way probably reduction of the tension was accomplished rather than by any direct drug action.

This woman does not show the usual causative factors of high arterial tension, excepting arteriosclerosis. Cerebral hemorrhage can be excluded. I believe no drug will permanently reduce blood pressure, especially when due to increasing age which we know produces high tension sooner or later. Rest, dietetic and hygienic measures are to be recommended.

¹ A symposium before the Society of Physicians and Surgeons of Louisville, Kentucky.

HIGH BLOOD PRESSURE WITHOUT CARDIAC LESION.

BY

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Not infrequently patients are encountered who have high arterial tension without organic lesion of the heart, liver or kidneys. I now have such an example under observation in a female of fifty-four whose maximum blood pressure for some time has been 240 mm. Hg. which I have been unable to reduce below 195. There is no albumin in the urine, and there is no kidney lesion present so far as can be determined by urinalysis. The cause of the high arterial tension is unknown to me.

One can readily understand why pilocarpine will reduce tension, but it has a marked depressing effect upon the entire circulatory apparatus. It causes a moderate temporary slowing of the heart action; its influence upon the vasomotor apparatus causes dilatation of the peripheral vessels thus materially enhancing capillary circulation and increases the blood supply to the sweat glands. Perspiration reduces tension by lessening the amount of fluid and blood in the vessels and tissues; induced in any other way perspiration would have the same effect, minus the lessening in activity of the circulation which pilocarpine induces.

Bromides act in similar manner, excepting that in addition to their effect upon the circulatory apparatus they materially lessen the metabolic function and the motor activity of the body. There is less tissue change and the blood is correspondingly diminished, less food is taken and hence tension is reduced.

I seriously question the use of such drugs in high arterial tension, also that high ten-

sion does as much harm as has been supposed, at least the high tension noted in patients with imperfect nutrition in consequence of arterial change. If you add to that the depressing influence of such drugs as the bromides, the functional activity of the body would be markedly lessened. The only possible harm that can be done the heart by high arterial tension is hypertrophy, and this may be regarded as a compensatory hypertrophy which can be withstood by the patient for a considerable period.

I have used the iodides and the iodine preparations in the management of high arterial tension. It is true that by virtue of their influence upon embryonic cell structure the iodides have a beneficial effect if administered before organization occurs, and just to the extent this is accomplished will they prevent progression of arteriosclerosis. After organization of the cell structure has occurred, it is impossible to induce resorption. Iodides simply assist in the removal of embryonic cells within reach of the blood and lymphatic channels.

I have also used sodium nitrite, which seems more logical for the purpose of reducing tension than bromides and pilocarpine. I usually give one grain two to four times daily, depending upon its effect. I prefer this to nitroglycerine because it is better adapted to internal administration, absorption is slower and the effect more constant; whereas the influence of nitroglycerine in proper hypodermic dosage is immediately manifest and disappears within forty minutes. Sodium nitrite is slowly absorbed from the gastrointestinal tract, greater sustained influence is therefore manifested, and better results are obtained.

I seriously question the use of many of the drugs ordinarily recommended to reduce tension, bearing in mind the fact that the

action of these drugs is detrimental to body nutrition, as set over against the possible harm that continued high tension may produce. Wherever there exists arteriosclerosis, permanent reduction of tension is impossible.

In the case I have mentioned the tension when the patient was first seen was 240; it has never been reduced below 195, and that only after continued rest in bed. I believe that baths, with regulation of diet, with limitation of the fluid intake as far as may be compatible with safety, together with rest in bed, constitute the best method of management in cases of high arterial tension.

NITRITE OF SODA IN TREATMENT OF HIGH BLOOD PRESSURE.

BY

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Louisville, Ky.

I wish to confirm what has been said with reference to the nitrite of sodium. It is probably the most reliable therapeutic agent at our disposal for the reduction of blood pressure.

It is questionable whether too much of the clinical symptomatology is not sometimes attributed to the blood pressure. There seems to be an overzealous effort on the part of many physicians to reduce the blood pressure as rapidly as possible by the exhibition of drugs which may in their opinion best serve the purpose. Such efforts may be unwarranted from the standpoint of the patient. The use of baths, rest, regulation of diet, etc., are to be recommended.

With reference to the urinary findings in cases of high arterial tension: The absence of albumin in the urine is not always an in-

dication of the non-existence of a kidney lesion. My idea may be wrong, but I have been under the impression that interstitial nephritis does not always mean that albumin must be present in the urine. In all instances where arterial tension is persistently high, urinary secretion with reference to the intake and output should be carefully investigated. This may have an important bearing upon blood pressure.

HIGH BLOOD PRESSURE AND ARTERIOSCLEROSIS.

BY

A. R. BIZOT, M. D.,
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The idea that high arterial tension is always due to or accompanied by kidney lesions is certainly erroneous. High blood pressure with arteriosclerosis is a most serious matter.

I recall the case of a female of sixty-six with this history: Father died of apoplexy at fifty-one; a sister was paralyzed for seven years, and a brother for three years, each having had three cerebral hemorrhages; another sister died suddenly from apoplexy; still another sister was blind for years, and finally died from asthenia due to organized clot. The patient in question has marked arteriosclerosis; she had some eye complication and was sent to Doctors Ray and Lederman, where a retinal hemorrhage was discovered. Her blood pressure was then 190. Iodides, bromides, sodium nitrite, etc., have all been used without influence upon the blood pressure.

I have come to the conclusion that high blood pressure is coincident with advancing age, unless there exists arterial disease to cause increased tension earlier in life. As

soon as elasticity of the arteries is lost, high blood pressure develops. In my opinion it is not often due to renal and cardiac lesions. In the case mentioned, notwithstanding treatment, the patient's blood pressure has ranged from 165 to 190; and there has been about the same variation when no drugs were administered. Warm baths, limitation of the intake of fluid, and restricted diet have accomplished more benefit than drugs.

In another case the patient is the subject of chronic interstitial nephritis and also arteriosclerosis. Within the last few weeks the woman has entered an institution for treatment of her mental condition, and I understand cerebral hemorrhage is anticipated. In most instances cardiac and renal lesions can be excluded as causes of high blood pressure; arteriosclerosis is undoubtedly the cause in the majority of cases; and cerebral hemorrhage with continued high pressure is to be anticipated.

A CASE OF FLOATING CARTILAGES IN THE KNEE JOINT.

BY

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F. M., a Sudanese, 85 years old and belonging to the "Fungari" tribe, called at the Civil hospital Gedarif (Sudan) for treatment, complaining as he describes it, of excruciating pain, practically forbidding all motion and the presence of fluid and three movable "bones" in his left knee joint. He was admitted to the hospital May 5, 1917 and operated upon on the following morning. The knee joint was opened under local anesthesia, letting the fluid escape and three irregularly faceted concretions delivered

by manipulation. The wound was immediately closed and no drainage left.

The concretions weighed respectively 5*i* gr. xx, 3*i* gr. xxv and 3*i* gr. xxx. A microscopic examination of a section showed them to be composed of "hyaline cartilage."

The joint, however, began to fill again, and as the wound had completely healed up, paracentesis was performed on the 8th day and 2 c.c. (5ss) tinct. iod. B. P. injected.

The next morning the joint was hot and swollen but the reaction disappeared completely on the fourth day.

It began to fill up again but on a very much smaller scale, so the same operation was repeated eight days later. This was followed by a less marked reaction than the former.

A week later there could be hardly any fluid detected, but 2 c.c. of tinct. of iod. were injected. The reaction being of no consequence this time, the patient was discharged three days later.

He was asked to report regularly, which he did. He was last seen on the 15th of March, 1918, quite happy with the result obtained for there were no more "bones" or fluid and he enjoyed a very much more liberal use of the joint. So I think that one feels justified to consider the case as cured.

Primary Perithelioma of Lymphatic Glands.—From observation of a case of this condition G. D'Oria (*Riforma Medica*, Nov. 6, 1915) draws the following conclusions: It is possible to find a primary origin of tumors of the peritheliomatous type in lymphatic glands, and perithelioma may be a tumor of the malignant type like sarcoma and carcinoma. Many observers are of the opinion that a perithelioma is always a benign new growth, but the case in point shows distinct sarcomatous characters and consequent malignancy.



LONDON LETTER

(From our Regular Correspondent.)

THE ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.

The customary annual meeting of the British Medical Association has not been held during the last four years. The meeting has been generally divided into what may be called domestic and general subdivisions, the domestic consisting of the meetings of the Council and Representatives and dealing with the internal work of the Association, the general consisting of the sections prepared to discuss the clinical and scientific work of the year. During the war the sectional debates on Medicine, Surgery, and the other branches of professional learning have not been held, as most of the prominent exponents of medical knowledge and skill were busily engaged at home or abroad on the medical work of the Navy or Army, and the annual meeting resolved itself into a meeting of the Council and of the Representatives. The war, it may be remembered, began immediately after the annual general meeting at Aberdeen in July, 1914, at which meeting it was arranged that the meeting in the following summer, *viz.*, July, 1915, should take place in Cambridge under the presidency of Sir Clifford Allbutt, the Regius Professor of Physics in the University. As that date approached it became perfectly clear that no adequate meeting could be held, while the University, which had become practically a large training camp for staff officers as well as cadets, was so denuded of all accommodation that the hospitality of its walls could no longer be proffered. By this time all men began to see that the end of the war was not far away, so the question of the next annual general meeting of the Association has been held under consideration ever since, and, now that hostilities are suspended, the position of strain in the medical profession has been so little relieved that it has been thought wise to attempt no full annual meeting until 1920, in which year, however, Sir Clifford Allbutt has announced that the University is looking forward to entertaining the Association. In the circumstances it has been decided that a special meeting should be arranged by the Association this year for the discussion of clinical and scientific subjects, but on a smaller scale as to sections than had marked all recent annual meetings.

It has now been provisionally agreed that this special general meeting of the British Medical Association should take place early in April and should last for two or perhaps three days. A General Committee has been appointed, together with two Sub-Committees, one taking over the organization and the other dealing in

detail with the programme of scientific work. The decision is an expression on the part of the Association that the time has come to relay old tracks and make plans for reconstruction, even tho no attempts at a comprehensive scheme can yet be entered upon. The meeting will be held in London and its main object will be to bring together British workers and medical visitors from the Dominions and the United States. It is quite clear that before April there will be no large disengagement from their duties either of our Colonial or our American colleagues, so that an exceptionally strong medical voice ought to be obtained on many subjects from a series of officers who during the recent troubled years have studied war medicine and war surgery on many spots and from many points of view. Col. A. M. Whaley, speaking as United States liaison Medical Officer with the War Office, has given a warm welcome to the proposal, which has also received the support of Col. J. G. Adami, Professor of Physiology at the McGill University, Montreal and Col. R. D. Rudolf, speaking for Canada, and of Col. C. T. M. DeCrespinay and Col. Bernard Myers, speaking respectively for the Australian and New Zealand Army Medical Services. Hearty acceptance of the proposal has also been received from Sir William Norman, Medical Director General of the Navy, Sir John Goodwin, Director General of the Army Medical Service, and Col. T. D. Barry, representing the medical administration of the Royal Air Force. If the scheme of the meeting is well drawn up and precautions are taken only to admit authoritative communications, the net result for good ought to be very great. But it must be remembered that two days or even three, will not provide much time in which to hear the first hand experiences and opinions of many men having many things of importance to say, and those who have had experiences of international gatherings hope that time will not be wasted in courteous preliminaries. International good feeling may be presumed to exist and will not require to be emphasized by a lot of introductory cackle. When formality is shunted in this manner, there will still remain the difficult question of overlapping. If a lot of men, apparently equally well equipped with knowledge, want to address the same meeting on the same subject, much discrimination will have to be exercised to prevent waste of time, and some call will necessarily be made upon the self-sacrifice of hard and original workers. The success of the clinical meeting of the British Medical Association may be great if those who draft its program of scientific work are at the same time tactful and firm. Waste of time must be avoided.

SIR CHARLES WYNDHAM, M. D., M. R. C. S.

Sir Charles Wyndham, who died this month at the ripe age of 82, was known all over the world as a brilliant and versatile actor, but it is not so well known that he was a medical man, and did service in the American Civil War as surgeon to the Federal army. Sir Charles Wyndham, whose real name was Culverwell, was the son of a Lancashire medical man, and

received his medical education at Kings College Hospital, from the medical school of which institution he emerged just sixty years ago as a member of the Royal College of Surgeons of England. He was a keen doctor, altho already attracted towards the stage, for he continued after qualification to gain post-graduate experience at Scottish, Irish and German medical schools, and when he arrived in America, just in time for the Civil War, he had the degree of M. D. Giessen. He saw much fighting, being present at, among others, the battles of Gettysburg and Fredericksburg, and serving thru the Red River campaign. It was actually during the closing winter of the war that, under the stage name of Charles Wyndham, he became a professional actor in New York. Later, about 1865, he returned to England, and definitely deserted medicine, tho he had a hard struggle to make good his position in the theatrical world. But by 1875 he made good both as an actor, and as the manager of the Criterion theatre, at the very center of fashionable and business London, in Piccadilly Circus. He never lost touch with the public, but always remained a finished actor, and when he received a Knighthood from his personal friend, King Edward VII, the honor was accepted by everyone as well bestowed.

INFANT WELFARE.

In all countries, and notably in the United States of America and in England the importance of infant welfare has been much accentuated by the mortality and conditions of the war. The outstanding feature of the 1919 Baby Week celebrations is to be a series of national conferences on infant welfare, at which the chief points for discussion will be (1) ante-natal and neo-natal casualties, their prevalence, causes, and prevention; and (2) the best neo-medical means of combating infant mortality and morbidity. The National Association for the Prevention of Infant Mortality and the National Baby Week Council are cooperating in the preparation for these conferences, and arrangements are being made for the holding of similar conferences and Baby Week celebrations in every allied and neutral country thruout the world, at which the same subjects will be discussed. Following on this an international congress will take place in London, at which the findings of the various national conferences will be considered, leading, it is hoped, to much light being thrown on these important subjects.

The international congress in question is not likely to take place before 1920, unless the normal course of civilized life is more quickly resumed than seems possible, but it is hoped that all the various agencies possessed by countries with more advanced humanitarian views will be put in motion to collect evidence for report and debate, and to formulate schemes for comparison and subsequent adoption. A great international consensus of opinion upon the most practical ways of combating infant mortality would have an overwhelming influence upon the domestic legislation not only of those countries, but of less advanced nationalities who,

under the freedom of a world peace, will be ambitious to deserve a high place in a league of nations. The congenital and hereditary defects of debility; the hereditary tendencies connected with syphilis, drunkenness, ill-housing; the bad industrial conditions leading to the employment of pregnant women and the relegation of infants to care-takers—all these things should be fought on a grand plan, for the good of the old states and for the advancement of the new.

THE ILLEGAL SALE OF POISONS.

In London recently there has been a series of cases where the public has been able to obtain in illegal and irregular manner dangerous poisons, especially such substances as opium and its derivatives, cocaine and veronal. These cases have come to public notice in police and coroners' courts and some of them have had, or will have, sequels in the higher criminal courts. Whether self-drugging has increased under the stringency of anti-alcohol legislation or not is much debated, but that is not the matter now under discussion. The point is that the public can obtain, thru the carelessness of doctors, the laxity of pharmacists, and the unscrupulousness of individuals, access to dangerous poisons which is denied them by express legislation. Not long ago a police superintendent obtained from a druggist, without any compliance with the regulations imposed by the Pharmacy Act, a quantity of prussic acid and immediately committed suicide with it. He was known to the pharmacist as a police superintendent and in deference to his position all the usual restrictions were waived, on his simple allegation that he desired to kill his dog. Clearly in the mind of the pharmacist the enactment of the law was not a matter which concerned either him as an individual tradesman or his customer as an individual policeman; it was a vague sort of regulation in the interests of the public which could be put on one side if individual interests were more clamant. It is this willingness to go behind the law which is one of the great sources of danger. Doctors again are greatly to blame in the form of prescriptions they give, rather than in the readiness with which they prescribe, narcotics. If prescriptions were carefully made out for a certain number of doses and that number of doses only, and if it was made clear that the prescription should only be renewed by the same doctor and made up by the same chemist, and would not be available unless so renewed, a large number of self-druggers would be saved from suicide, voluntary or involuntary, and a great number of accidents would also be obviated. The law provides exactly for this sort of thing, but when the regulations are not kept by the doctor they are not insisted upon by the druggist, and so break down. It came out at a recent inquest near London that a woman had purchased morphine in huge quantities on some prescription which she had obtained in a perfectly legitimate manner. Relying on this prescription, she issued a series of written orders to druggists all of which were complied with and, at the inquest which eventually ensued,

the verdict was death from cardiac and pulmonary conditions accelerated by morphine poisoning. How to stop this sort of thing is exercising the wits of the authorities, and the proceeding adopted in a totally different case may indicate the policy which it is proposed to pursue. Traps will be laid by bogus patients both for doctors and chemists, the idea being that in this way witnesses to the offense that has occurred can be produced in courts of law, who, only being technical sinners and not drug takers, will have no objection to tell the truth to a magistrate. This course has been pursued to bring home to a druggist in the center of London the penalties in force against unqualified persons who attempt to administer treatment for venereal diseases. A medical man arranged the introduction of a police detective to the druggist in the character of a *bona fide* patient. The druggist, the unqualified, proceeded to treat the patient for venereal disease, and in the police proceedings that followed, the bogus patient, having no shameful pathology to confess to, was able to give a succinct story of what had occurred, and the druggist was heavily fined. No one likes to rely upon the activities of the *agent provocateur* but there is no doubt that in these cases it is the *agent provocateur* who is most likely to secure a conviction which being attended with heavy fines will act as a deterrent. There is a feeling of course against members of the medical profession playing any part in such transactions and it is generally hoped that however necessary it may be to set traps for pharmacists who are either lax in their regard for the poison regulations or unscrupulous in assuming medical duties, it will not be necessary that medical men should assist in baiting these traps. The position of the medical man who has lured either a professional colleague or a tradesman closely associated with medical administration into breaking the law cannot be a pleasant one.



COMPULSORY HEALTH INSURANCE.

To the Editor,
AMERICAN MEDICINE:

I beg to call your attention and that of your readers to the enclosed letter to the President of the Medical Society of the State of New York.

It will require the early and united action of every physician in the State in the manner indicated in this letter to defeat for the fourth time the scheme for "Compulsory Health Insurance" now disguised as "Health Insurance."

The trade-mark "Yours for Health" long

monopolized by the late, if ever existent, Lydia Pinkham has been appropriated bodily for political purposes in the highest political quarters.

Respectfully yours,
JOHN P. DAVIN, M. D.

ENCLOSURE.

February 2, 1919.

T. H. Halsted, M. D.,
Pres. Medical Society State of New York,
Syracuse, N. Y.
Dear Doctor:

In duty to the standards of our profession and to the welfare of the public whom we serve, I would like to call your attention, and that of the Council of the State Society to a measure now before the Legislature, and recommended for passage by the Governor in his message to the Legislature.

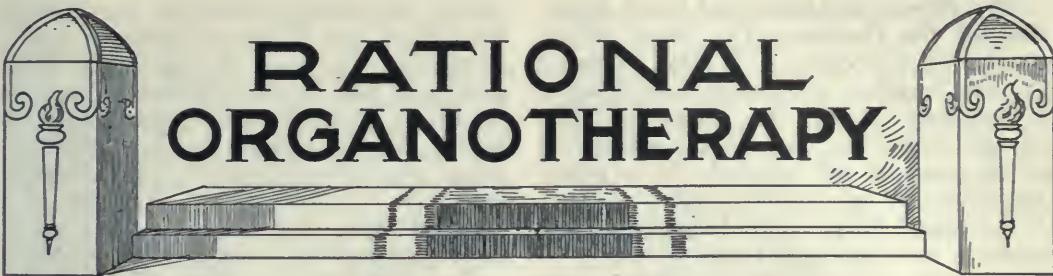
This measure is a bill for what is called "Health Insurance." It is the same one essentially, which under the name of Compulsory Health Insurance has been defeated three times already by the efforts among others of the entire Medical Profession of this State. It is now advocated by the State Industrial Commission, and by a so-called "Association of Manufacturers." There is no evidence that the public and the medical profession upon whom would fall the loss and burden accruing from the passage of this measure have been consulted in any way in regard to its provisions.

At an initial outlay of \$1,500,000 it would place upon the State Board of Health the duty of assuming charge of the health of the working population of the State, as well as those who would apply to it for special advice or treatment. It is a political attempt to put into practice the theory of the "Socialization of Medicine," at a time when the political socialization of every other form of enterprise is falling into disrepute.

Hitherto the State Society has waited until the eve of the passage of Medical Laws, before entering its protest formally before the Legislature. On all such occasions we have received but a perfunctory hearing before a body more or less biased against an attitude of opposition to its findings.

I would suggest now, that this matter be placed before every County Medical Society in the State for their immediate consideration, the results of which to be forwarded by the Secretaries of these Societies to the members of the Legislature representing the various Counties in the State. In this way the profession would command a hearing and compel a respect for their representations that hitherto they have not been able to command when this duty was delegated to a committee appearing before the Legislature generally at the eleventh hour of its session.

Respectfully submitted,
JOHN P. DAVIN, M. D.,
Member Medical Society County of New York,
Secretary, Association for Medical Defence.



RATIONAL ORGANOThERAPY

The Inter-relation of Ductless Glands.—

Since the pioneer work of Claude Bernard with the ductless glands there has been opened to medicine almost a trackless field of research. The functions ascribed to the ductless glands have been extended, however, says an editorial writer in the *New York Med. Jour.*, (July 20, 1918), to include other glands which have external secretory functions. It is found now that such glands as the pancreas, ovaries, kidneys, cardiac, pyloric, and fundic glands have both an internal and external secretory action. But the term "endocrinous glands" refers rather to the glands with only an internal secretory function, and include the pituitary, thyroid, parathyroids, the adrenals and, most likely, the spleen. The whole range of glands having internal secretory function is better designated as a system because of their close interaction. All are so closely bound to each other that a disturbance in one will throw out of gear or out of action all the others. Not only do these glands secrete material which controls certain phases of the organism, but in order that this control shall be in harmony they secrete material for the control of the action of the others. This control may be inhibitory of the action of the others or stimulating. It is either antagonistic or supplemental. Oversecretion of one gland soon becomes toxic to the organism, and it is the function of the others to control this. The antagonistic action of one over the other not only prevents the overactivity of the others, but keeps the line of action pulled taut. That even the disturbance in one gland may have dire results can be seen from the fact that the action of these glands is concerned with the control of such vital processes as the vasomotor system, nutrition, circulation, digestion, etc. Indeed, there is no phase which they do not control and disturbances

may become manifest even with disturbance of one gland. It is for this reason that in conditions thought to have origin in this form of disturbance gland medication, organotherapy, contemplates the giving of the extracts of many glands, a sort of polyvalent gland extract. Whether the theoretic basis for this action is correct or not, better results do in fact follow the use of polyvalent extracts.

But, while the whole system is strongly bound together, some of the glands are more closely related in their action to each other than to other glands. The thyroid and the adrenals control each other's action antagonistically—that is, inhibiting the overaction of the other. The pituitary, on the other hand, seems to reinforce the action of the thyroid. However, the thyroid seems to be the most versatile, having a direct influence on all of them. The thyroid has, moreover, a very definite control over the ovaries and their generative and menstrual functions. The thyroid and the adrenals are probably most concerned in the control of the sympathetic, altho all of the glands are concerned in the maintenance of the equilibrium of this nervous system. Gland disturbances may be either in the production of deficient or of hyperactivity. Probably such indefinite conditions as neurasthenia, malnutrition, sexual neuroses, and allied conditions, and, more specifically cretinism and dwarfism are produced by deficiency, while goitre, acromegaly, gigantism, diabetes, gastric and duodenal ulcers are caused by hyperactivity. These are but a few of the illustrations of the wide range of gland activity. There can be no doubt that many of the obscure and vague conditions will soon be included among those conditions caused by disturbances of the glands of internal secretion, and amenable to the same treatment.

The Effects of Under and Over Secretion of the Ovaries.—The exact physiology, or pathology, of total removal of the ovaries according to Osborne (*New York Med. Jour.*, Sept. 7, 1918) depends upon the age of the individual at the time of the removal. It is rarely justifiable to remove both entire ovaries in the human female, and of course it is excessively rare that such an operation should be performed on a girl before puberty. Most knowledge of early extirpation is acquired by operating on animals. There is no question that the early removal of the ovaries causes the masculine type of development, with a greater growth of the extremities. A later removal of the ovaries causes atrophy of the uterus, and may or may not cause abortion in a pregnant animal.

There seems to be a great disturbance of the nutrition, and especially of the chemical metabolism, after ovarian extirpation. More especially is there a diminished calcium excretion, and probably there is a disturbance of the chloride and phosphorus equilibrium. Waste metabolism is less active, and the body puts on weight largely in fat, if the extirpation is after puberty. Other endocrine glands are also disturbed by such extirpation, notably the thyroid. The thyroid may have its colloid content increased, but often it soon becomes less active, and may even hyposecrete.

In early extirpation of the ovaries the thymus has become enlarged and active, and the pituitary and suprarenal glands may become more active, to the production of a masculine appearance and masculine tendencies.

If a small portion of an ovary, or if a supernumerary ovary is left in the animal, there may be no signs of privation of this secretion, or, if at first such signs are in evidence, they may soon disappear.

Excessive ovarian secretion (probably generally associated with increased thyroid secretion) causes increased sexuality, even to all kinds of sexual perversion. Simple increased secretion may make girls coquettish and constantly seek male companions. Even if there are no other symptoms of increased ovarian secretion except profuse menstruation, the body loses an excessive amount of lime and other salts, as well as blood, essential to the general welfare of nutrition and of the nervous system. Often this ex-

cessive menstruation and increased waste metabolism may be due primarily to hyperthyroidism. Excessive ovarian secretion in girls may lead to masturbation or may be caused by masturbation. It may cause insanity, and the relation of the various internal gland disturbances to female insanity should be carefully studied. Removal of a diseased ovary or a diseased uterus has at times cured serious mental disturbances.

Excessive ovarian activity, either *de novo* or from too frequent pregnancies may cause osteomalacia. Ovarian hypersecretion may also cause parathyroid disturbance (perhaps due to calcium shortage from a too great loss) and therefore more or less nervous symptoms. Removal of one, or of one and a half ovaries, and feeding calcium may cure osteomalacia.

Treatment of Enlargement of the Thymus.—A recent abstract in the *Correspondenz-Blatt für Schweizer Aerzte (Jour. A. M. A., Jan. 25, 1919)* states that W. Birk insists on the absolutely different clinical picture presented with simple enlargement of the thymus and that with the thymus-lymphatic state. The former, simple enlargement of the thymus, usually develops during fetal existence, and the trachea is compressed by the abnormally large thymus even before birth. Death is the result of suffocation, the already damaged trachea becoming compressed to the point of suffocation. The status thymico-lymphaticus, on the other hand, is not congenital and in this the constitution and the food are of paramount importance, while these have no influence on the congenitally enlarged thymus. But the latter can be modified by the Roentgen rays, and Birk reports five cases in which the excessively large thymus promptly shrank to normal size under the exposures. In one case the gland enlarged again later, but in all the others the cure was prompt and permanent.

Action of Pituitary Extract on Kidney.—Knowlton and Silverman (*Amer. Jour. of Physiology*, Sept., 1918) found that the oxygen consumption by the kidney is not increased during the diuresis induced by

pituitary extracts. Using the oxygen consumption as the criterion, there is no evidence that pituitary extract stimulates the renal cells. Thruout their experiments increased blood flow thru the kidney was an invariable accompaniment of pituitary diuresis. From the evidence at hand it seems possible to explain the diuretic action of pituitary extract entirely on the basis of the vascular changes and increased filtration pressure obtaining in the kidney.

Physical Therapy

Under the Editorial Direction of Albert C. Geyser, M. D., New York.

REACTION OF DEGENERATION.

Only so much of the anatomy and the physiology will be considered as seems immediately necessary for a clear comprehension of what is to follow.

Neuron structure and function.—By the term neuron we include the entire anatomical structure, beginning with the trophic center, the protoplasmic prolongation and the end organ.

The central motor neuron begins with the motor ganglion cell in the cortical motor area of the cerebrum. The protoplasmic prolongation (the axis cylinder) passes downward and crosses over to the opposite side of the body. The end organ of the central neuron consists of the *end brush* and this is situated at its particular level in the spinal cord.

The shortest central neuron begins at the motor cortical zone and after decussating in the medulla ends in the cervical region of the neck; the longest central neuron passes downward as far as the beginning of the lumbar enlargement. This bundle of nerve fiber is therefore much thicker above than it is below and is known as the pyramidal tract.

The function of a central neuron is to convey the impulse from the cortical cell along the path of the axis cylinder to the end brush. When such a motor impulse arrives at the end brush, it is translated into an energy, which is then taken up by

a large multipolar cell in the gray matter of the anterior horn of the spinal cord.

The multipolar ganglion of the anterior horn is the beginning of the peripheral neuron. This neuron consists of a ganglion cell, a protoplasmic prolongation (the nerve) and the end organs. The function of the peripheral neuron is to carry into execution the message of the central neuron. It acts as a sort of a relay. The motor cell of the central as well as the motor cell of the peripheral neuron, besides generating impulses, presides over the nutrition of all parts of which they themselves are formed and the organs to which their branches are distributed.

From this anatomical and physiologic review we are in a position to appreciate just what must happen, if a lesion occurs in any portion of a motor neuron.

In cerebral apoplexy we may have pressure exerted over the cells lying in the motor cortical zone. Such a lesion would interfere with the generation of motor impulses. No impulses arriving at the end brush, none could be interpreted by the multipolar ganglion cell of the peripheral neuron; the muscle supplied by this particular neuron would be without function, therefore paralyzed.

Owing to the fact that the peripheral motor cell controls the nutrition of the muscle to which its branches are distributed, this cell being intact, the nutrition of the muscle would not suffer, there would be no atrophy, excepting that which results from non-use.

If a lesion is located in any other portion of the central motor neuron, the pathologic result would be the same. Since the central motor neuron cannot be tested in a patient, these lesions cannot be demonstrated electrically.

When a lesion occurs in the peripheral neuron, conduction from the cell to the end organ is interfered with. The trophic center is cut off from the nerve and muscle, hence there is a flaccid paralysis with early and rapid atrophy. Upon testing such a nerve electrically, the axis cylinder fails to conduct the artificial stimulus because the nerve has degenerated from lack of nutrition, there is no muscular contraction, hence we have the phenomenon of *reaction of degeneration*. In reality, it is the failure to react to the electrical stimulus that denotes

the fact that the axis cylinder has degenerated.

Every lesion in the peripheral motor neuron can be located with exactitude by the electric test, not only that, but by repeated examinations the prognosis can be foretold with almost a certainty.

While the lesion of the central motor neuron cannot be thus demonstrated by the use of an electric current, nevertheless their presence can be inferred by establishing the non-involvement of the peripheral neuron. Every muscle paralysis is due either to a lesion in the central or the peripheral neuron. The electric examination discloses the

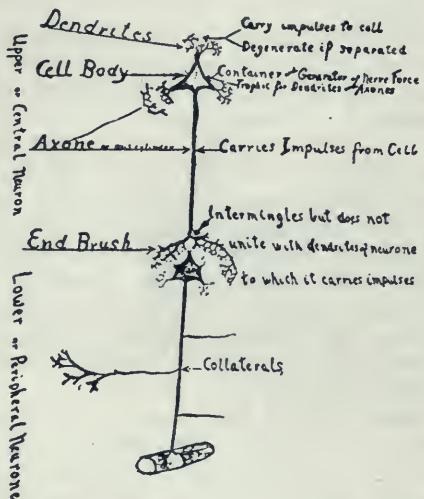


FIG. 1.

one and excludes the other. Every neuron, the same as every individual cell, in the whole economy is compelled to perform a certain function, it does this and it cannot do anything else.

A neuron obeys the "law of constant effect of nervous citation." It makes no difference whether a nerve is excited into activity by a normal stimulus from its trophic center or by the application of an electric current to any part of the nerve, the effect on the organ of reaction is invariably the same. In the case of a motor nerve there is always a muscular contraction, in the case of a sensory nerve, sensation of some kind is projected toward the center. Since the effect of nerve stimulation is "constant" an interesting phenomenon is worth mentioning. The localization and the character of the muscular movement are determined

not by the site of stimulation but by the number of fibers excited and their peripheral distribution to the muscle. So too, the location and the specific quality of the sensation, e. g., pressure, heat and pain, which occurs on stimulating a sensory cutaneous nerve at any point, is identical with that produced by the action of natural stimuli upon the end organ in the skin. The most striking example that can be adduced in proof of this law is that observed when a limb has been amputated. "When the member to which a nerve trunk is distributed," says Johannes Muller, "is removed by amputation, the stump of the nerve which

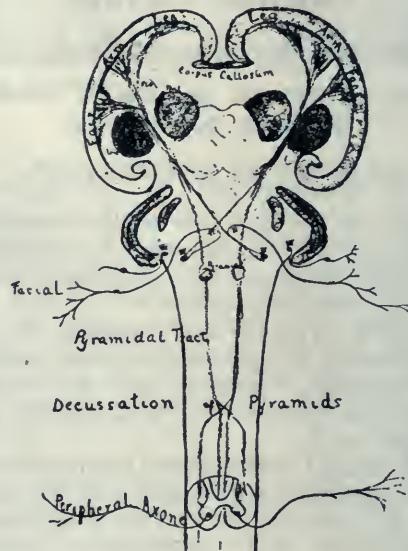


FIG. 2.

contains the whole of the shortened nerve fibers is capable of the same sensations as if the amputated limb were still present. This persists all thru life." (Luciani's *Physiology*, p. 201.) Any irritation, injury or inflammation which may occur at the stump is immediately translated into a sensation as occurring in the amputated member. Upon recovery they have the same sensations that normal people feel in a healthy limb, and there is often a persistent sensation of itching, or discomfort, which happens to be localized in the limb that no longer exists. The writer is in position to speak upon this peculiar phenomenon with some authority. In 1912 it became necessary to amputate the little and the ring fingers of my left hand including their respective

metacarpal bones. The left hand had been injured as the result of repeated exposures to the X-rays. Altho the amputation occurred more than six years ago, as far as feeling or transmission of sensation is concerned, the hand is still intact. When the hand is exposed to the cold, the impression conveyed centrally is as tho the amputated fingers shared in the feeling of cold. Many persons eventually become accustomed to these sensations, and cease to notice them; but they surge up again when attention is focussed upon them and are often distinctly felt in the fingers, sole of the foot or hand. These sensations are made more acute when pressure is exerted on the stump or the scar. It frequently happens that the end of a nerve is pressed upon from adjacent scar tissue. Nothing short of a freeing of the nerve will relieve the painful sensation in the missing member.

The symptoms of "anesthesia dolorosa" are no less important to the demonstration of peripheral projection of sensations. Traumatic paralysis from compression or section of a nerve trunk, in which more or less extensive cutaneous areas become totally insensitive to the strongest stimuli, tho the patient still complains of intense pains in them owing to the irritable state of the nerve trunk, is not infrequent. In surgery, division of a nerve may fail to cure neuralgia, as it merely interrupts the conduction of external peripheral excitations to the center, but cannot suppress the conduction of central irritation in the nerve which gives origin to sensations projected to the periphery similar to those produced by extrinsic local stimulation.

This failure to arrest pain projection after section is demonstrated especially well in cases of tic douloureux of central origin. The pain sense, while central, is nevertheless projected to the peripheral end of the divided nerve.

The phenomenon of peripheral projection of sensation can easily be demonstrated under normal conditions by mechanical excitation of one's own ulnar nerve in the groove of the internal condyle at the elbow, where it is accessible; this produces a prickling in the palm and the back of the hand, and in the third and fourth fingers. In my own case, altho the third and fourth fingers are absent, any irritation of the ulnar nerve

between the condyles causes a tingling sensation as tho these fingers were normal and in their places. The motor nerves pass thru a similar phase, of course motion in the absent member cannot occur, nevertheless, if the desire to move the absent member is strong enough, the individual, as far as the central sensation is concerned, appreciates every intended motion as tho it really took place. A medical friend was obliged to undergo an amputation of the leg just below the knee. For some years he experienced much difficulty, he would make the attempt to step upon the shortened leg without the support of his crutch. So real was the muscular sense projected to the periphery and into the absent member, that he forgot to make reasonable use of proper support, often to his detriment.

In order to have a muscle respond to a stimulus of a motor nerve, four essentials must be in a normal state.

First, a multipolar cell in the gray horn of the spinal cord must send out an impulse, *second*, this must be conducted along the axis cylinder, the nerve fiber, *third*, to the end plate which invests each sarcolemma of the muscle and *fourth*, the entire muscle bundle or the muscle itself must be in a normal physiologic condition to perform its function, that of muscular contraction. A lesion located anywhere within the peripheral motor neuron will interfere with the end result, the intended muscular contraction.

An apparent paradoxical phenomenon has been observed in nerve and muscle testing and incidentally it has frequently brought discredit upon electrotherapy, *viz.*, that a stronger or more frequent stimulus produces less effect than a weaker or less frequent stimulus. This is explained by the fatigue of the end organs. The excitability of these is depressed after each stimulation, recovery takes place after an interval which is longer in proportion with the strength of the preceding excitation and the degree of fatigue. If the stimuli are too strong and follow too rapidly, there may be much delay or no recovery, and a degree of inexcitability ensues; if the stimulus is weakened, or made less frequent, the reaction reappears. Under normal conditions these effects of fatigue are manifested only in the muscle and particularly in the motor end

plates. Under certain pathologic conditions even the nerve trunk shares in this phenomenon altho to a much less degree.

It is probable that the waste products developed by the muscle during tetanus have some significance in the production of exhaustion in the end plates, as they may exert a toxic action on the motor nerve endings similar to that of curare.

For many years the interrupted galvanic current and the faradic currents have been employed therapeutically in poliomyelitis for no other purpose and with no other aim in view than the causing of muscular contractions. Simply because voluntary muscular contractions could not be produced by the patient, these currents were made use of in order to produce that which was lacking. When we consider that in poliomyelitis the lesion is located in the gray matter of the anterior horn, that the axis cylinder, the end plates and the muscle are cut off from their trophic center, we may well pause and consider the effect of causing such muscular contraction under an artificial stimulus. If there was any possibility of regeneration by a normal process of recovery, it must have been much delayed, if not entirely removed by such unscientific meddling. Not only was there more or less injury to ganglion cells as a result of the poliomyelitis toxemia, but to this was added the fatigue poisons of the forced muscular contractions and their destructive effect upon the delicate end plates. Muscular contractions brought about by artificial stimuli, when the trophic centers are cut off, are on a par with driving a horse after its food trough has been cut off.

Altho under normal conditions the nerve is almost inexhaustible to prolonged artificial stimuli, so long as these do not alter its substance. Its specific activities, excitability and conductivity may progressively diminish and eventually disappear when it is deprived of the essential conditions for its existence. An important condition of the vitality of the nerve lies in its anatomical continuity and connection with its central organ. A long series of well established facts proves that when this connection is interrupted, its normal nutrition and morphologic structure are altered as well as its excitability and conductability.

Reaction of Degeneration.—The practical

value of the recognition of R. D. lies in the fact that, when present, it points to some defect, to some degenerative lesion in the neuro muscular area exhibiting its phenomena. R. D. always means some nutritive disturbance in the nerve or muscle involved. It must be remembered that the lesion may be either in the trophic cells, the axis cylinder, the end organs or the muscle itself. In other words R. D. always means a *peripheral neuron lesion*; it can, therefore, not be elicited in purely cerebral palsies, it is not present in muscular atrophy, the result of non-use or inflammatory changes, neither can it be elicited in hysterical paralysis or shamming. It is a common occurrence that a complete cerebral hemiplegia may not show R. D. even after years of existence, yet a pressure paralysis such as the drunkard's brachial paralysis or the facial paralysis, Bell's palsy, when the nerve is compressed within the bony canal may show R. D. immediately and extensively. The former offers little or no hope of recovery while the latter usually become normal in the course of a few days or weeks. The mere presence or absence of R. D. is not prognostic tho it is invariably diagnostic at once.

While the presence of an R. D. means a neuron lesion in the peripheral motor tract, it also excludes the lesion from the central tract. This does not mean that while we are dealing with a peripheral neuron lesion, that it is precluded thereby that no lesion exists in the central tract. Let us suppose that a patient is suffering from an apoplectic paralysis. The lesion is located somewhere in the motor cortical zone of the cerebrum or in the internal capsule. The resulting paralysis is most extensive, yet R. D. cannot be demonstrated because the nutrition and the conduction from the trophic center in the spinal cord, the entire peripheral neuron, is not involved. It is true motor impulses are not conducted along the peripheral neuron, but that is because none arrives in the spinal cord from the cerebrum. Let such a patient fall asleep with the paralyzed arm in such a position that long continued pressure would be exerted upon the musculo-spiral, median or any other nerve of the brachial plexus; almost at once there would be failure of conduction, at least conduction would be impaired and accordingly we would have added to the hemiplegia a pressure paralysis with the lesion

in the axis cylinder of the peripheral neuron. Within a few hours R. D. could be demonstrated which would have nothing in common with the pre-existing central paralysis, it would simply mean the co-existence of a central and a peripheral motor neuron lesion.

R. D. occurs:

1. In paralysis which is the result of injury or disease of the multipolar ganglion cells in the anterior cornua of the spiral cord and the motor nerves of the bulb.

2. In paralysis which is the result of injury or disease of the anterior roots and the peripheral axis cylinder where the physiologic function of the trophic centers fails on account of the interruption of conduction or nutrition to the end organs in the sarcolemma.

R. D. is present in poliomyelitis because early in the disease the infective process in the cord, whether due to germs, toxin or a virus, produces a local tissue reaction. This reaction in the cord is essentially inflammatory and intended as a reparative process. During this localized inflammation leucocytosis and diapedesis are marked features. Thru the overactivity of this process there is crowding, compression of destruction of the gray matter. Since the motor cells are imbedded within the anterior horn and since they are the most highly organized cells in this area, they suffer correspondingly. The higher the function of a cell, the easier and the more permanently is its function altered or destroyed by injury. From the very moment of interference with the function of a multipolar nerve cell, nutrition to all its parts is modified. It is because the nerve fiber, the end plates and the muscle it supplies depend for their nutrition upon the integrity of this cell that degeneration must take place whenever the trophic cell is injured. The distal paralysis is due to the fact that the cells send out no more impulses, the degeneration is the result of failure to provide the necessary nutrition and as a result we have a gradually increasing descending degeneration.

Cystitis.—Curtis asserts that urinary retention is more active etiologically in cystitis than the misuse of the catheter.—*Ur. and Cutan. Review.*



The Use of Vaccines in Acute Influenza and Influenzal Bronchopneumonia.—Wynn (*The Lancet*, Dec. 28, 1918) refers to the fear and reluctance so frequently manifested in the use of vaccines for treatment. He considers the vaccine dosage recommended by the Conference held at the War Office last October, and adopted by the Army and Local Government Board, entirely inadequate and points out that in the treatment of influenza and its secondary bronchopneumonia Lord Fisher's advice is appropriate: "Strike early and strike hard." Every case should be regarded as serious and a dose sufficiently large to produce a satisfactory response within a few hours should be given when the patient is first seen. When the author first used vaccines in the diseases in question, doses as small as 5 million were given; and results, tho occasionally good, were uncertain. Larger doses were then given, with better results. It is important that the first dose should be effective. The doses now recommended in acute influenza and influenzal bronchopneumonia are: For an adult man, 80 to 100 million pneumococci, streptococci, and *B. influenzae*; for an adult woman, 60 to 80 million; for a child of 12 to 14, 40 to 50 million; for a child of 2 or 3 years 10 to 20 million. In deciding the dose the size of the patient is more important than the age. The dose should not be reduced because of the gravity of the illness. If the first dose gives no, or an insufficient, response the next dose should be larger, the doses being repeated on alternate days, or even in some cases every day. With a first dose of 100 million it is rarely necessary to increase this.

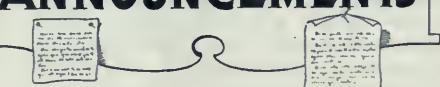
The timidity so often shown even by those who use vaccines in chronic diseases towards their use in acute diseases apparently arises from theoretical considerations as to the possible harm caused by negative phases. This is not the place to enter into a theoretical discussion on the mode of action of vaccines in acute diseases. My attitude for the moment is the pragmatist's, "It is true because it works." But it may be pointed out that the doctrine of the negative phase was worked out in patients suffering from chronic localized diseases. The conditions existing in healthy persons and in patients with acute disease are very different and not comparable.

Those accustomed to vaccine therapy know that in the treatment of chronic localized diseases—chronic arthritis, mucous colitis, chronic bronchitis and asthma—considerable reactions may be produced by quite small doses, and great care is necessary in increasing the doses. The patient appears to be "sensitized" in a different manner to those suffering from

acute disease. Again, a dose of 000.0001 c. cm. tuberculin may cause a smart reaction in a case of chronic localized tuberculosis, but would have no effect in a case of advanced phthisis or acute caseous bronchopneumonia. One possible explanation may lie in the very different amount of infection in the two cases. A dose of 100 million pneumo cocci is very small as compared with the inconceivable number of cocci in the body of a patient suffering from acute pneumonia, but becomes appreciable when compared with the number present in a case of chronic otitis media.

Prophylactic injections have been given to 230 persons, 100 million of streptococci and pneumococci and 50 million *B. influenzae* being used as a first dose, and after a week double these doses to 90, but as there is no good reason for reducing the number of influenza bacilli the last 140 have had equal numbers of each organism. In some cases a third dose of 400 million and in a few a fourth of 800 million has been given.

NEWS NOTES AND ANNOUNCEMENTS



American Chemicals Established High Record in Exports for Year.—No industry in the United States has shown a more wonderful growth during the war than that of chemicals. The exportation of chemicals from the United States in the year which ends with this month will show a total of approximately \$175,000,000, against \$27,000,000 in the year immediately preceding the war.

While of course the exportation of strictly war material such as explosives, shells, etc., shows perhaps a larger increase during the war period, the growth in the production and exportation of chemicals for which a permanent demand could be expected is especially suggestive in this country with such large possibilities in this line, both for foreign and domestic markets. A compilation by the National City Bank of New York shows that the value of chemicals exported steadily grew from the beginning of the war, and as above indicated will approximate \$175,000,000 in the current year, against about \$27,000,000 in the year immediately preceding the war.

The United States has always been a large importer of chemicals, the total value of this class of merchandise imported prior to the war being about three, and in some instances as much as four times the exports, and while the demands of the war have been such as to somewhat stimulate the importation, meantime the percentage in the growth in imports has been small compared with the percentage of growth in exports. The imports grouped under the head of chemicals consist largely of classes of

materials not produced in the United States, and included in the fiscal year 1918 \$70,000,000 worth of nitrate of soda, a Chilean product, and \$22,000,000 worth of gums, strictly tropical products.

Eliminating these strictly tropical articles which have been classed by the Government as "chemicals," the present importation of manufactured chemicals is extremely small, indicating that our own manufacturers are at present supplying the great markets for chemicals in the United States, and at the same time sending nearly \$150,000,000 worth a year to foreign markets. In the full fiscal year 1918, the chemicals exported aggregated in value \$152,000,000 against \$27,000,000 in the year preceding the war; \$46,000,000 in the first year of the war and \$124,000,000 in the second year of the war.

The Pennsylvania Bureau of Drug Control.—A special bulletin has been issued by the Department of Health of the State of Pennsylvania, explaining the antinarcotic law of that state to every physician, dentist, veterinarian, pharmacist, druggist, and registered nurse in the State. The law declares it illegal for any one either to have possession of or to traffic in narcotic drugs except persons belonging to certain designated classes. The regulations regarding the handling and prescribing of these drugs by pharmacists, physicians, dentists, and veterinarians are detailed and explicit. A bureau of drug control has been organized under the direction of Dr. Thomas S. Blair which will be charged with the execution of the law.

A Journal Devoted Especially to the Disabled.—The "American Journal of Care for Cripples," which is the only special periodical in English on provision for the disabled, becomes a monthly with its January issue, according to announcement by its editor, Douglas C. McMurtrie. Altho dealing extensively with the rehabilitation of the invalided soldier, the Journal is in no sense a war product, as it is now entering upon its eighth volume.

This periodical will contain in the future the studies, translations, and abstracts produced by the research department of the Red Cross Institute for Crippled and Disabled Men, which material has hitherto appeared in a special series of publications. The Journal also continues as the official organ of the Federation of Associations for Cripples.

Physicians Needed in Rural Districts.—Dr. Hermann M. Biggs, State Health Commissioner of New York, calls attention to the fact that many rural communities in New York are absolutely without a physician, and in many cases the condition is serious, as neighboring towns can no longer be depended upon for medical assistance in emergencies on account of the bad conditions of roads.

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In Advance

Lethargic Encephalitis.—The appearance in the United States of a disease characterized by drowsiness and paralysis of some of the cranial nerves, particularly the ocular, raises the question as to whether a new form of disease has started to invade the land. During the early part of 1918, there were observed in England and France small epidemics which were regarded as possibly due to botulism, poliomyelitis, a meningeal form of influenza, or possibly a new symptom-complex or an unknown cause. For the present, the term "lethargic encephalitis" is accepted as a name, despite the fact that there is some question as to its being a new disease.

In the *Journal of the American Medical Association* of March 8th, there appeared side by side two articles, one by Josephine B. Neal discussing "Meningeal Conditions Noted During the Epidemic of Influenza," and the preliminary report of A. L. Pothier on "Lethargic Encephalitis," describing a number of cases which were observed at Camp Lee, Petersburg, Virginia. In Neal's experience, few cases of meningitis are found to be directly due to the influenza bacillus. A moderate number of patients were found to be suffering from meningitis following an attack of influenza. In about twenty instances, during convalescence from clinical influenza, meningeal symptoms such as headache, stiffness of the neck, Kernig's sign, and drowsiness appeared, with the

spinal fluid clear in character, but under increased pressure. The spinal fluid reactions point to changes similar to those found in cases of poliomyelitis and polioencephalitis. She reports, also, three cases evidencing a more severe type of infection, involving cardiac and respiratory centers, and, one instance at least presenting the general rigidity that has been reported by English writers as symptom-complex of lethargic encephalitis.

Pothier enumerates eight cases characterized by a tendency to cranial nerve involvement, fever and slight changes in the spinal fluid. Other symptoms noted were nystagmus, tremor, drowsiness, delirium, vertigo, diplopia, headache and a spinal fluid showing a definite lymphocytic pleocytosis (from 20 to 66 cells.) At the camp, there were no cases of poliomyelitis, and the patients came from widely separated organizations.

Cases of this general type have been reported also from Chicago and New York,¹ and are more or less in accord with the general descriptions which created interest and alarm in England, France and Austria during the past few years. According to an editorial writer in the *Journal of the American Medical Association*, "The English investigators consequently regard lethargic encephalitis as due to an as yet unknown virus which causes inflammatory changes, especially perivascular infiltrations, in the

¹ See letter, page 175.

basal ganglia, the upper part of the pons, especially in the gray matter of the floor of the fourth ventricle, and in less degree elsewhere in the medulla. It is distinctly a poli-encephalitic disease; the outstanding clinical features are a more or less pronounced lethargy, often progressive, and paralysis of the third and less often other cranial nerves ensues. Ophthalmoplegia was observed in about 75 per cent. of the English cases."

Stress has been placed upon the similarity of the cerebral and bulbar forms of epidemic poliomyelitis, but thus far data are lacking to prove the identity of the two diseases. Intra-cerebral inoculation of monkeys has failed to produce the lethargic encephalitis, despite the fact that the anatomico-pathologic evidences are most similar.

Is Lethargic Encephalitis Due to Influenza?—The question promptly arises as to whether lethargic encephalitis is directly related to influenza, in the wake of which the epidemics have occurred, or whether it constitutes a definitely new pathologic entity. It is unfortunate that the term "sleeping sickness" has been popularly applied to this new manifestation of the epidemic, because of the possible confusion it may cause in the minds of non-medical persons as its real origin. The fact that somnolent conditions arise and ophthalmoplegia is a common concomitant, and that these two states have been previously reported in connection with earlier epidemics of influenza are strongly suggestive of the probability, that lethargic encephalitis is not to be regarded as a new disease. At the present time, however, evidence is inadequate to permit the formulation of a definite opinion. The appearance of this symptom-complex demands most careful investigation, chemical,

bacteriologic, cytologic and pathologic in order to determine its real place in the category of disease states. The variations in the mortality are marked, but no more so than occurs in other poliencephalitic conditions.

It is to be hoped that further investigation will demonstrate that this unfortunate condition bears some relation to influenza, and is not to be dignified by a place among actual diseases referable to a new, tho unknown cause.

Birth Control Opinions.—The subject of birth control continues to create interest and discussion. A symposium on the subject, appearing in the *Medical Review of Reviews*, March, 1919, contains a number of expressions of opinions and beliefs of physicians. The subject matter expressed in the numerous letters resulting from a questionnaire, offers nothing that is new in the way of argument either for or against the subject.

The most significant contribution of the symposium is secondary in nature and incidental in origin. While answers were received from 47 physicians, four did not wish to express any opinion; two were too busy to give it attention; twelve had not given the subject sufficient study to warrant the expression of an opinion; two had gone to war; and three thought the matter should not be discussed in war time. These facts are enlightening, particularly as 25 per cent. of the replies stated that the writers had not given the subject sufficient study to warrant the expression of an opinion. It scarcely seems possible that physicians constantly facing the facts of life, understanding well the difficulties in family relations, developments and adjustments, should escape the impress of social conditions and

therefore feel incompetent to express an opinion.

It were far better, from the standpoint of judgment, to possess opinions contrary to current trends, traditional beliefs, to be ultraconservative or ultraradical, than to evidence lack of interest in the phenomena of life constantly presenting themselves to medical men. It is almost unbelievable that such a large proportion of physicians should admit a lack of knowledge upon a subject concerning which they might be and are consulted by members of the laity. It is undoubtedly more rational to think wrong than not to think at all.

The questions which were submitted were as follows:

"1. Do you believe in the doctrine of birth control, or are you unequivocally opposed to it?

2. Do you believe the laws against the dissemination of information regarding contraceptive methods are equitable and just, or is it your belief that these laws are harmful and should be repealed?

3. Do you think that birth control has any connection with the economic situation, or is it an ethical issue exclusively?

4. Do you think the widespread knowledge of birth control would result in an increase of immorality by permitting sexual indulgence without the responsibility of parenthood; or do you think it would tend to decrease immorality by enabling young men to marry without the immediate fear of having to support a family?"

Physicians, representing an educated segment of humanity, should possess some ideas, theories, beliefs, opinions or judgment upon every one of these simple, direct, frank queries. If the medical men desire to maintain their cherished reputation along educational, medical and humanitarian lines they cannot escape the necessity of thinking. To avoid being on the wrong side of a question, hesitancy of expression is useful. To dodge an issue by wilful silence is cowardice. To agree with the demands of a majority is no more evidence of good faith than an honest conviction as to the correctness of the views or ideas of a minority.

Neutrality in thinking processes testifies to indecision, lack of interest, or mental hebetude. Acknowledgment of ignorance may be an honest confession but when tinctured with a sense of fear of being registered is a weak evasion. Where do physicians stand on the subject of birth control? What does the physician think concerning birth release? Are doctors unwilling to give their opinions to the public? Apparently a regrettably large percentage of the profession requires time to think, or the courage to think out loud, and birth control is merely a type of topic that shows one weakness that demands a remedy.

Public Health Administration.—The developments in public health administration have been rapid. The critical days thru which we have passed and are passing have taxed the ingenuity of administrators and opened vast vistas in the realm of public service. The institutions of war created new problems requiring many alterations in methods and management. The protection of civilian health has made continuous demands, many of which require adaptations in administration, particularly in the face of severe epidemics of respiratory afflictions.

The training and experience requisite for public health service of a high order have not been fostered to any great extent thru the existent educational machinery, despite the fact that courses leading to a doctorate in public health exist in at least five of our largest medical institutions. The impetus of the times has forced men into varying spheres of activity for which adequate preparations had not been offered. Among the leaders in public health work, the trials have been severe, but for the rank and file, the obstacles have been overwhelming. The gen-

eral field of public health administration has broadened, and the progress which has been made thru the acceptance of new ideas and the expansion of higher ideals has not been reflected in the accomplishments of public health work thruout the country. While this may be a criticism of public health work, it is not condemnatory in spirit, but merely a recognition of the rapidity of growth of the public health movement and the slowness with which methods permeate to the general health administrators in all sections of the country.

The improvement of the welfare of the nation is dependent in part upon the general improvement of civic health. In order to achieve the utmost for the familial, economic and social interests of each community, it is imperative that public health leadership be extended thruout the land. Intensive courses have been provided in various fields of work under the auspices of the government in order to meet the needs growing out of the transformations demanded by the military activity of the country and the consequent alterations in the industrial and social world. These intensive courses have proven their worth, and the lessons they have taught merit inculcation and imitation along many lines. For this reason, a word of congratulation is merited at the institution of a course in public health administration that is to be given in New York City under the auspices of the Training School for Public Health Service of the New York Bureau of Municipal Research, in cooperation with the Public Health Committee of the New York Academy of Medicine. The projected course involves three and one-half weeks devoted to daily conferences, with two weeks spent in field study of public health agencies and institutions in New York City.

The synopsis of the conference program involves three parts: "Part I—Introductory, covering public health progress in the United States and the relation of federal, state, municipal and private health agencies to the health movement. Part II—The organization of a health department and the legal and financial aspects of health administration. Part III—The administration of special health services, covering the following subjects: Vital statistics, communicable diseases, contagious disease hospitals, tuberculosis, venereal diseases, industrial hygiene, mental hygiene, hospitals and dispensaries, child hygiene, medical inspection of schools, public health nursing, public health education, rural hygiene, maritime quarantine, food and drugs, general sanitation, the public health laboratory."

The list of conference leaders and speakers is excellent, and contains the names of recognized leaders in the public health field, drawn from various parts of the United States, from municipal, state and federal agencies, as well as those specialists whose experience in connection with specific problems makes them the paramount leaders and teachers.

The status of post-graduate medicine in the United States is not exceedingly high, and this movement to offer a post-graduate course in public health administration redounds to the credit of the two organizations cooperating in its development. There is every reason to believe that a course of this character, if attended only by the fifty persons to be accepted for the course, will be of marked benefit to the communities whose representatives attend. There will be, furthermore, a marked influence upon the general level of public health administration if these fifty persons are intensively pre-

pared to assume a finer type of leadership in public health affairs.

The results of post-graduate instruction along ordinary medical lines benefit the individual patients, but gains in knowledge concerning public health administration influence the lives and destinies of entire communities. The wholesale administration of health must necessarily be more effectual in its end results than what has been termed, the retail practice of medicine.

The medical profession should support an opportunity to better prepare itself to lead in public health and to reach and maintain a high plane of efficiency. The fact that the Public Health Committee of the New York Academy of Medicine is cooperating in this project is a source of pleasure and congratulation. It represents a rational and significant effort to work along acknowledged lines of effectiveness for the better education of medical men and for the advancement of the health of the nation.

the principles of classification, with their results.

Some of the most valuable informative material is, as usual, hidden in an appendix, replete with statistical tables. Conscription during the Civil War period afforded little opportunity to judge of the real health status of the citizen soldiers because less than two per cent. of the total fighting forces raised by the Union was secured by this means. The recent selective service registration, involving 24,234,021 men, gave an ample opportunity to secure a general view of the physical condition of a larger number of men than had been previously possible. It is, therefore, interesting to note variations in health conditions which really were causative of physical rejections.

Of one hundred thousand men examined in urban regions, the rejections amounted to 21.68 per cent. while of a similar number examined in rural regions, the rejections were only 16.89 per cent. This, in a measure, would point to a superior physical condition of men dwelling under rural conditions, a fact thoroly in consonance with our previous opinions upon the relative advantages of rural and urban life.

Considerable significance attaches to a consideration of the causes for physical rejections in the rural and urban districts. Numerous reasons may be given for the variations noted, tho a very close analysis is requisite to determine upon the actual underlying factors determinative of a preponderance of one type of defect in urban districts or in rural districts. Taking the facts as revealed in the statistical tables, it is significant that the following disqualifying defects caused higher percentages of rejections in urban districts than in rural districts: Alcohol and drugs, developmental mental defects, defects of the ears and

Some Selective Service Facts.—The vast number of reports growing out of national activities during the past two years affords a valuable opportunity for studying conditions as they exist and formulating plans for modifying undesirable states of affairs. Some reports, such as that of the provost marshal general, are remarkable presentations of the *modus operandi* of newly established pieces of national machinery. The operation of the selective service system was remarkably successful, and the submission of the report by the Provost Marshal General E. H. Crowder effectively details, with much human understanding, the numerous problems involved in registration, the process of selection and

eyes, flat foot, and hernias. On the other hand, the disqualifying defects most responsible for physical rejections in rural districts include defects of the bones and joints, of the digestive system, non-venereal genito-urinary diseases, diseases of the heart and blood vessels, mental deficiency, non-tuberculous respiratory diseases, defects of the skin, teeth and thyroid gland. It is interesting to note that venereal genitourinary diseases had very little variation in the two districts under consideration, while nervous and mental disorders, respiratory and non-respiratory tuberculosis, similarly showed very slight differences.

The differentiation of disqualifying defects becomes more suggestive when one notes that alcohol and drugs caused three times as large a percentage of disqualification in urban as in rural districts, while mental deficiency was twice as great per centally as the cause of rejection in urban districts as compared with the rural sections. The increase of defects of the eyes and ears, the presence of flat feet and hernia are readily interpreted in terms of conditions of urban life, while defects of the teeth and skin, bones and joints are not difficult to understand when considered in relation to the difficulties of adequate and immediate surgical care after accidents. It is astonishing, however, to find that respiratory tuberculosis constituted only 5.6 per cent. of the rejection in urban areas as opposed to 5.3 per cent. in rural districts. The states whose rural and urban districts were compared include Maryland, Massachusetts, Illinois, Ohio, New York, Pennsylvania and Missouri.

Another fact of more than passing interest is that while the number of whites examined was five to one of the

blacks, only 69.71 per cent. of the whites were put into Group A as opposed with 74.6 per cent. of the blacks who were placed in Group A. Offhand, it would appear that the physical condition of the whites was inferior to that of the blacks. It is possible, however, that the relation of rural to urban conditions may account in part for the seeming large difference in A-fitness between the two types of men.

A thoro analysis of the physical rejections at camps by local boards and by camp surgeons indicates that the local boards made only one-tenth per cent. of rejections because of drugs and alcohol, while camp surgeons made 0.72 per cent. of their rejections for the same reason. Similarly, the study reveals a higher percentage of rejections for hernia by camp surgeons (10.67 per cent.) than were rejected by the local boards, 3.3 per cent. Despite these and various other differences in judgment which are evident from the statistical report of the sifting process, which varied indeed, in various parts of the country, in different camps in separate states, and even within the zones of influence of specific local boards, there is abundant evidence that the administration of the selective service system on the part of the medical profession was well done. It was by no means a simple matter to secure, without draft, a large number of examining physicians, to train them in part to an understanding of the rules and regulations of the provost marshal general, which varied from time to time in the establishment of physical standards of qualification.

The report bears witness to a deep sense of appreciation of the collective efforts, in which the medical profession played no small part, upon which the successful operation of the selective service system de-

pended. When all statistical material is available, it is to be hoped that part of the reward of the profession will be a series of special studies of the statistical material that has been accumulated with a view to aiding the medical profession in advancing the status of modern medicine.

artificial hand furnished by the employer." The use of the artificial hand, it was believed, would enable her to earn wages and thus reduce the amount of compensation necessary.

A number of the state laws direct compliance with reasonable medical directions of this character. Inasmuch as a number of the provisions of the compensation laws are designed to restore injured workmen as rapidly as possible to their maximum state of capability, it becomes necessary to establish reasonable mandates for securing compliance with the procedures deemed necessary for the fullest restoration to potential usefulness. If advice and instruction be given and accepted and untoward results unfortunately should follow, the final state of disability resultant from carrying out the provisions of the law would then be open for a question of compensation for the permanently existent disability or handicap.

It is difficult to determine with definiteness the end results of operative procedures, tho prognoses may be given with reasonable assurance. The responsibility of advising injured employees naturally rests upon the medical examiners. Pressure or coercion by employers plays no part in determining the functional handicap, or the method for securing its palliation or elimination. The medical examiner is, in a sense, a disinterested witness, whose advice is offered not merely for the benefit of the injured employee or the employer, but really in the interests of the state which has enacted the compensation law for the greater protection of its social and economic welfare. The principle, therefore, of compliance with reasonable medical instructions dignifies the authority of the medical examiner, and increases his obligation and responsibility for recognizing the operative necessities in

Reasonable Medical Instructions.—The provision of workmen's compensation was based upon the theory that industry should pay for the accidents arising therefrom, and the individual workman should not be penalized or his family suffer because of circumstances for which he is not completely responsible. It should be obvious that an injured workman who claims compensation because of his status as a productive unit of society "owes a reciprocal duty to make the most advantageous use of the provision afforded him."

Bulletin of the United States Bureau of Labor Statistics, No. 243, calls attention to some decisions relating to medical treatment which indicate that injured workmen should comply with reasonable medical instructions if they desire the continuation of compensation payments. The Supreme Court of Illinois has held that it is unreasonable for an employee to refuse to undergo an operation for the removal of a cataract caused by accidental injury, and has authorized the withholding of an award while such refusal continued, it being held that the "loss of sight was probably due to such refusal and not to the accident." Similarly, the Industrial Accident Board of Massachusetts ordered the discontinuance of compensation payments until a woman who had lost a hand "should agree to undertake to wear and accustom herself to the use of an

specific types of injury and the actual benefits to be derived therefrom. The question of compensation as such does not concern the medical examiners; that is a matter for the decision of commissions duly authorized. Their major interest lies not merely in the injury incurred, but in the physical fitness of the person injured. From the medical standpoint, the compensation laws throw out two challenging questions: How nearly whole can the injured workman be made? How quickly can he safely return to occupation after having been restored to the maximum power?

For this reason, industrial surgeons are coming to possess certain powers and standing which grow out of the responsibility of the employer to supply adequate medical care. This runs counter to a definite tendency to allow the injured workman a measure of freedom in the selection of his own physician. The personal relations, and the feeling of confidence in the physician of personal choice are of the utmost value, but do not necessarily suffice to insure the most successful end results from the standpoint of industrial efficiency. This is a matter, however, which, in many laws, lies within the power of the employer, who may grant the right to the workman to select his own medical attendant within provisions laid down by the law. The question as to which physician is in attendance is subordinate to the question of the capability of the medical attendant and his conception of his duty to the state. Compensation laws are not personal in their application, but must be considered in their complete relation to the welfare of the state.

Fighting Venereal Plagues.—One of the most pronounced *post bellum* benefits

to the nation arises from the increased general interest in the venereal diseases. The numerous activities organized and extended during the war for the purpose of protecting the welfare of military and naval forces within the confines of America and overseas represent a marked advance in anti-venereal disease campaigning. Under the stress of pressure exercised from Washington, largely thru the medium of the Commission on Training Camp Activities and the offices of the respective surgeons general, legislative action was taken by numerous states; and a large number of local ordinances were established with a view to decreasing the venereal peril. Publicity, the regulation of extra cantonment zones, the establishment of venereal clinics, and legislation have resulted in crystallizing a sluggish public opinion into an active opposition to the diseases and their underlying causes. Combative opinions are organized into activities required for anti-venereal disease campaigns.

The summary of conditions as they exist today as tabulated in *Public Health Reports*, February 7, 1919, indicates that in 13 states a bureau or division of venereal disease has been established by their departments of health. The more significant legislation, however, is that which involves the reporting of those afflicted with gonorrhœa and syphilis or other venereal disease. Six states, namely, Colorado, Indiana, Maryland, New Jersey, Ohio and Vermont now demand the reporting of patients by name, while 39 states call for the regular reporting of the venereal diseased by number, altho 27 of these call for the giving of the name upon failure to comply with certain definite conditions laid down in the law. In 34 states, quarantine is required by law,

altho in all probability the practical observation of these regulations is limited by lack of adequate facilities to comply with them.

In the instances where serial numbering is the first step, the reporting by name is contingent upon the discontinuance by the patient of treatment prior to reaching the non-infectious stage, or laxity on the part of the patient whereby he wilfully or carelessly fails to observe the precautions deemed necessary to prevent the spread of infection to other persons. This form of cooperation to prevent the exposure of names appears to possess a certain measure of potential force, greater than that involved in the mere reporting by name. The establishment of quarantine regulations is obviously a supplemental factor in guaranteeing the community a certain measure of safety against those lacking the home facilities to enable them to have a fit and proper hygienic environment and treatment during the period of greatest infection.

The development of efforts to protect the community from the black plagues is similarly reflected in the type of literature now being issued thru the bulletins of the various State Health Departments. From a certain uniformity in publicity it is patent that the new work being carried on under the general direction of the division of venereal diseases of the United States Public Health Service is bearing fruit. Even the prudish press has felt called upon to disregard its traditions and to publish, with various degrees of expurgation, bulletins undoubtedly emanating from Federal sources. For the first time, the entire country appears to be ready to accept pronouncements from authoritative sources concerning the dangers from venereal diseases and their absolute and relative leading impor-

tance as a factor in racial deterioration and as a cause for physical disability and economic incapacity.

Medical cooperation is still the great need of the hour. The attitude of the medical profession towards venereal diseases as related to public health has been indefensible. The individual patient has been regarded as a sick individual, altho too frequently, without a feeling of responsibility that he is also a public health menace. There has been, in many ways, a lack of understanding of the importance of constructive educational measures in lessening the evils in particular communities. Dwelling upon the pathologic aspects of the venereal diseases is insufficient. There must be a definite, constructive program from the standpoint of public treatment and prevention. The demand by educators at the present time for the introduction of courses in sex education in secondary schools is indicative of an altered sentiment on the part of teachers, the leaders of whom apparently are now willing to assume their obligations towards the growing generation. A secondary school teaching, however, will not suffice to meet the problem. There is a vast amount of educational work requisite during the elementary school period which problem can best be conducted thru the medium of home education. The average parent is notably lacking in knowledge of the content or the methods of imparting the essential facts necessary to protect growing children from the dangers arising from an uncontrolled environment and from the gross and inaccurately alleged facts which are spread thru the medium of loose tongues and prurient literature. In order to secure effectual modification of present methods of

home education, the medical profession must realize its duties and obligations to the growing generation.

The mental attitude of the old type family physician must carry on with an advanced idea as to the necessity of aiding parents in handling sex problems. The physician as an educator is not a new role in practice, altho in this special field his efforts have been sadly lacking. The public health program for combating venereal diseases takes notice of the part the home must play in the problem, but its achievements will be limited unless there is the fullest support of the medical profession. Education should precede legislation. Unfortunately, the exigencies of martial conditions require some degree of reversal of this process, altho the degree of education afforded the moral elements of the community was greater than any previously made possible thru the efforts of those interested in public health.

The present campaign is not following moral lines directly, altho ethical values are by no means forgotten in the attempt to achieve the acceptance of a rational program in attacking the venereal diseases. The legislative enactments thus far have been practically uniform along lines designed to control the physical phases of venery, because, after all, in these lie the greatest danger to public health, namely, contagion. The moral phases will be left as a supplemental part of the program, tho of by no means inferior importance. The press, the pulpit, the medical profession, the philanthropist, the public health officer, the eugenist, the reformer, and the intelligent citizen must unite in order to effectively conquer the venereal peril and protect the growing generation, and those that are to come.



Birth Control and Birth Prevention.—

Dr. Hilda Noyes, an authority on eugenics and the care of babies, is an advocate of birth control. Needless to say, she is thoroughly well informed about the methods of contraception. In view of this, the critic of birth control (even the friendly critic perhaps) would be freely disposed to judge that Dr. Noyes, informed as she is and aware of the grave responsibility of motherhood, might be the mother of one child, possibly of two children at most. The fact is that she is the mother of six splendid children. This interesting instance of the philosophy of birth control and its effect on the family is here mentioned not in approval of the doctrines of birth control, but in disapproval of a misunderstanding of the movement which is almost universal. It has always been the policy of AMERICAN MEDICINE (as it is the policy of every just critic) to examine both sides of the shield before committing itself to a final judgment, and we have adhered to this policy in the faith that the majority of the profession are of our own mind, which is, we trust, not an unduly prejudiced one. In printing Mrs. Sanger's article in this issue, AMERICAN MEDICINE feels that it is fulfilling its obligation to its readers; and in recording its own impressions here it is fulfilling its obligation to itself.

In two important respects the birth control movement is very much misunderstood. In the popular mind it has come to signify but one thing, birth prevention—an incomplete and erroneous impression. It also is charged with advocating the small family, distinctly an undiscerning judgment. The emphasis of the philosophy of birth control is clearly indicated in its name; it is toward *control*. Prevention is but one of the methods of control found expedient in some cases, but it is by no means the only solution recommended. There are two ways of avoiding a train wreck when there is a dangerous ob-

stacle on the track: one is to stop the train, the other to clear the track; and of the two the latter is distinctly the method to be preferred. The advocates of birth control lean toward this method, and their efforts to clear the family track of economic, social and health obstacles are too often not sufficiently recognized. Hence the popular misapprehension that they encourage small families. The truth is that they encourage small families where large ones would seem detrimental to society, but they advocate with just as great insistence large families where small ones are an injustice to society. They frown upon the ignorant poor whose numerous children, brought into the world often under the most unfavorable circumstances, are a burden to themselves, a menace to the health of the not infrequently unwilling mother, and an obstacle to social progress. But they frown with equal disapproval on the well-to-do, cultured parents who can offer their children all the advantages of the best care and education and who nevertheless selfishly withhold these benefits from society. More children from the fit, less from the unfit—that is the chief issue in birth control. The emphasis is on "control" rather than on "prevention." Seen from this point of view, the movement certainly assumes a different aspect. Its intention is not hostile to the family but rather favorable to it, so that, if there is anything to criticize in the issue, it is not the motive but the program alone which is open to attack.

Wanted: A Program.—In one respect certainly the advocates of birth control have a clear advantage over its opponents—the advantage that President Wilson and the friends of the League of Nations have over its opponents. Despite their voluble and heated protests, Senators Lodge, Borah and others have been very slow to suggest a substitute for the League which will be acceptable to a war-weary world. The opponents of birth control, tho they have been emphatic enough in their criticism (some of it, it may be admitted, quite just and convincing) have nevertheless failed to come forward with a program of their own. That a program is necessary, that some form of decision or legislation is advisable, it would be rash to deny. Take, at random, a case reported by a nurse in the poorer districts of New York City: "One of my

mothers has been the victim of fifteen pregnancies. She now has five living children; one of them is permanently deaf from an old case of otitis. Another has had a foul discharge from the ear for nearly two years. Only an operation can cure this; the parents refuse to have it done. Two of the other children have rachitic deformities. Of the fifteen pregnancies, one resulted in a miscarriage. Nine children died during infancy, death being due to ignorance and neglect. All who lived thru the first year were more or less enfeebled by being kept at the breast long after the milk had lost its value as nourishment. This one thing is, I believe, the greatest wrong done to babies among the poorer classes. The women hope in this way to escape pregnancy—an erroneous method of birth control. This explains the reason for the great number of children who are afflicted with bow legs, knock-knees and the various deformities resulting from the lack of proper bone-making materials." This Odyssey of motherhood among the ignorant poor is as typical and disheartening a picture as one can imagine. Pathetic in the extreme is the dumb, ignorant effort at prevention which was perhaps the direct cause of the death in infancy of nine of the children and the deformity of the surviving ones. And this case is by no means exceptional. Any frank practitioner familiar with family history in the poorer quarters will readily admit that it is rather the rule, and will be able to cite instances that are even more distressing. Who can deny that such a situation is dangerous in the extreme to both society and the family? Society and the family are the concern of both sides of the dispute. In her article, Mrs. Sanger frankly owns that she does not "question the intent nor the high purposes of these physicians (who oppose birth control), or that they are working for the improvement of the race." Knowing Mrs. Sanger's sincerity, one may unhesitatingly return the compliment and credit her with the highest motives. In this respect, both sides are beyond impeachment in the genuineness of their interest in the good of the race. However, the strength of Mrs. Sanger's case lies in the fact that she has a definite program, while the weakness of her opponents lies in the fact that they have none. They still approach the problem as tho it were a question whether or not we should have birth control. The fact is that,

in nine families out of ten at least, we have birth control—ignorant, unenlightened, dangerous birth control. The case quoted and the innumerable instances that come immediately to the mind of the practitioner are evidence of this. The question, then, is whether we are to have intelligent birth control, directed toward the improvement of the family and the uplift of society; or unintelligent, dangerous birth control as at present practiced, endangering, often breaking, the health of the mother, imposing a burden on the family and on society of which both should be relieved, and cluttering the highway of progress with cripples, imbeciles and mendicants who are the by-product of a stolid attitude of *laissez faire* or let well enough alone. To brand birth control, as so many of its opponents do, as the philosophy of the licentious, is to ignore its value as a scientific contribution to the study of race improvement. It must be frankly admitted that the knowledge of birth control, placed in the hands of the public, is a dangerous weapon; but all the tools of civilization are edged tools. Many excellent men, of high standing in their profession, are bitterly opposed to birth control; but it is regrettable that they have preferred, up to the present, to state their objections in emotional rather than in scientific terms. They have submitted no program. Dr. Harvey W. Wiley, an opponent of birth control, asserted recently that every educated, well-to-do family should be obliged by law to contribute a minimum of four children. That is the nearest approach to a definite program he saw fit to venture upon, but there is little in it that the most ardent advocate of control would object to. Are the opponents of birth control content to have it said of them that their strength lies merely and only in the fact that they have the approval of precedent and age-old sentiment on their side?

There is an amusing aspect to Dr. Wiley's suggestion which tempts comment. Opposed to control tho he is, he reveals himself inadvertently and innocently as an advocate of that philosophy. A well-to-do and educated couple, left to the natural course of nature, would contribute a dozen or more children to the well-being of society. To limit themselves to four offspring implies the employment of the very birth control methods to which Dr. Wiley is so warmly opposed.

The High Cost of Winning.—Norman Angell's book, "The Great Illusion," startled the thinking world on its appearance some years ago with the revolutionary theory, admirably sustained and logically demonstrated, that the victor loses as much by war as the vanquished. Mr. Angell brought so many facts to bear in proving his case, facts that were for the most part undeniable, that he won many converts to his way of thinking. Unfortunately, however, he did not convince the world and the great war came despite his revelation of the cost of war even to the winner. The Allies have won, but the triumph of the Allies is threatening to prove a triumph at the same time for Mr. Angell—a demonstration of his assertion that the victor is always the loser—for the Allies are well on the way toward losing all they had hoped to gain by the defeat of Germany. It is an unhappy fact that victory has a tendency in any country to restore to power and confidence all the reactionary elements. During the war these elements were obliged to withdraw to the obscurity they deserved and gave way to an idealism, a hopefulness and a forward-looking tendency toward reform which promised great things for the future. This idealism was typified by the United States. America entered the war under no suspicion of pursuing selfish ends. We had nothing to gain in money or territory and we expected nothing. All that was asked was that the old order of things, the pernicious system of "balance of power" which was an invitation to war, should come to an end, that heavy armaments cease, that secret and selfish scheming among the nations be forever terminated, that the peoples of the earth be forever guaranteed against the hideous mistakes of the past. This idealism won an immediate response everywhere. America was recognized as the moral leader of the Allies, and the people of Europe flocked to the standard that was to be the emblem of the new order. It was this element of idealism alone which made it possible for the discouraged elements in all Allied countries to continue a war which had come to pall on them. It won the war.

But the idealism which was born in the dark days of seeming defeat vanished in the hour of victory. The reactionary forces came into their own again, and the people, lulled for the moment into security and too

happy in their triumph to quarrel, allowed the reactionaries to speak for them. Italy boldly and stubbornly reverted to her old territorial claims, contrary to her acceptance of the Wilson propositions. Reactionary elements in France spoke up for excessive claims that would only mean another war in the near future. Wilson alone, mindful of his obligation to the masses of the world, remembering the idealism to which this country and the Allies had pledged themselves, held out stanchly for sacrifice on all sides in order to bring about the new order. And, despite much opposition, he persuaded the Allied delegates to accept a program for a league of nations. They did this unwillingly, regretfully even, but they did it because they were wise enough to understand that behind President Wilson's insistence was the silent backing of the masses of every country, and that their refusal would bring down on their heads the bitter condemnation of these masses.

The President's Critics.—But the reactionaries in this country were more outspoken and bolder than those in Europe. Being politicians, they forgot the promises made during the war, just as every good politician forgets the promises he made before election. President Wilson came home from Paris only to find himself exposed to the bitterest campaign to which an executive has had to submit in many years. The program of his league of nations was ripped to shreds by the critics. It was faulty, it was dangerous, it was foolhardy, they cried. And, perhaps they are right. That the league program is imperfect no one will hesitate to deny. It would be rash to claim perfection for it, but the President had a right to expect that those who did not agree with him would at least offer him friendly criticism, helpful cooperation, that they would support him in his fight against the reactionary elements in Europe and his efforts to give the world the thing it had fought for and was expecting. This friendly criticism, this helpful cooperation he did not get. Instead, he was met with bitter and violent opposition. And the result was that President Wilson returned to Europe only to find that the reactionary elements, encouraged by the opposition shown in America, had made bold to revert to their frank wish for conquests, regarding the American chief as no longer a factor of any great consequence. The

Paris Conference began to take on the earmarks of the Congress of Vienna, and President Wilson had to begin his labors anew, under less favorable circumstances.

Whoever has his finger on the pulse of the masses cannot but insist that the course so many political leaders in this country have chosen is fraught with great danger. The masses in the Allied countries are for the moment silent. They are still too dazed with victory to be articulate; but, if this war ends as wars in the past have ended, with a temporary peace that sacrifices the security of the future for the gain of the present, they will make themselves heard. The temptations of such a peace are great. The Congress of Vienna submitted to the temptation. The victors seemed enriched, the vanquished seemed forever crushed, but the world knows the sequel. The crushing of Germany now would seem to assure peace permanently, but it seems to be forgotten that the war was fought not only to destroy Germany but to destroy war; unless some vigorous effort is made to do away with war effectively, the war will have been fought practically in vain. It was for this that the masses gave their blood. Everywhere they are restive, impatient. In almost every country in Europe, revolution is knocking at the door. To deny them what they have fought for, what they are awaiting for, would be to thrust them into the arms of revolution. It would place them at the mercy of the temptation of Bolshevism, which promises them international brotherhood, international peace. Europe would once more go thru a period of revolt and ruin which it went thru for thirty years after Napoleon. That is the issue the opponents of a league of nations face. If the present program is unsatisfactory, let them suggest a better one. One cannot quarrel with them because of their assertion that the program as it stands is faulty—it is—but one may justifiably object to the grounds on which they attack it. Colonel George Harvey, a bitter opponent, writes: "We fought one war of independence. Do you want to fight another? Do you wish to resume our original subject condition as a British colony? Do you want our country to forfeit the independence won by Washington and the Continental army and again become in effect a vassal state? If so, all that you and the majority of your fellow countrymen have to do is to indorse this in-

famous proposition, which I say to you constitutes nothing less than a betrayal of our great Republic!" That is the kind of thinking which has been relegated to the past. It bases its force on distrust of England, it breeds suspicion, jealousy, hatred among nations, it is the sort of thing that has been at the bottom of many wars in the past. It is a compound of infatuated nationalism and narrow provincialism. Naturally a league of nations would mean, in a measure, a surrender of sovereignty, but is that necessarily fatal? New York State is a member of a league of nations on a smaller scale, known as the United States of America. In order to join this league it has had to surrender a measure of its sovereignty. Would any one say that New York State has become an abject vassal of the nation? Such logic is unconvincing and faulty in the extreme. The opponents of the league should come forward with something more substantial than negative criticism. Such criticism will not advance the cause of lasting peace a single step. There is ample occasion for helpful suggestions, but thus far such suggestions have not been forthcoming.

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Tor Ransdell of Louisiana, alarmed at the rapid growth of divorce, proposed an amendment to the Federal Constitution abolishing absolute divorce with the right to remarry. In almost every case, this has been the course advocated by reformers—a rigorous tightening of the divorce laws. But these earnest but misguided reformers seem unaware of the patent fact that tightening the divorce laws will not tighten the marriage bond. If anything, it will strangle it. Certainly that is not the way out. It would be just as unwise to urge the abolition of solitary confinement by putting the jailer into the solitary cell with the prisoner. Such a course would only increase the prisoner's capacity for mischief and would no doubt prove very trying to the jailer. The abolition of divorce would prove infinitely more dangerous, to both the individuals involved and to society, than the present lax laws. It would incline toward the destruction of the very family life which such a measure means to keep alive. Considering the good of the race, it would be extremely shortsighted.

In part the alarm of the reformers is due to the fact that they consider that the increase of divorce is coincident with the increase in corruption or immorality. That this assumption is unfounded is interestingly demonstrated by the figures. New York City is by no means the most innocent metropolis in the world nor is it particularly distinguished among the cities of America for its virtue. Yet New York State shows an amazingly low number of divorces, despite the fact that its leading city comprises one-tenth of its population. This may be due in part to the fact that divorce can be had in New York on only one ground, but it has been shown often enough that evidence of infidelity is easy enough to supply.

In considering the situation that confronts society and the menace offered to American homes, it is apparent that there is need for more intelligent and earnest thinking on this problem, for it is inevitable that it will grow worse rather than better with the passage of time. Now that woman is rapidly becoming a social entity, now that she has discovered her individuality and is demanding the right to develop it fully, there may be two reasons for divorce where there was only one before. If the reformers mean to anticipate this development, it would be wise for them to realize in time that they cannot

The Problem of Divorce.—In 1916, there were in this country 1,050 marriages in each 100,000 of population. Of these marriages, 112 had ended or were destined to end in divorce. That is the testimony of the figures officially compiled by the Bureau of Census, which discovers that there are 112 divorces for every 100,000 of population. In other words, one marriage in every ten in the year 1916 will terminate in the divorce courts. In the year 1867, there were only 27 divorces in every 100,000 of population, hardly one-fourth as many as there are today. This is hardly a surprise to those who have been studying the divorce situation, but no doubt the staunch defenders of the noble institution of marriage will make this another occasion for alarmist agitation for a tightening of the divorce laws. That the situation is as serious as these alarmists would make it appear there is no doubt, but that the changes and reforms they recommend will improve the situation at all is much more doubtful. It is amazing how little clear thinking has been done on the divorce problem. The predominant element has been emotional rather than logical. In 1914, Sena-

bring down a wild duck by calling it bad names. Likewise, it might be wise for them to concern themselves a little more with the task of making marriage more attractive rather than with that of making divorce less attractive.

False Economy and Proposed Narcotic Drug Legislation.—In recommending abolition of the Narcotic Drug Commission and the transfer of its duties to the Health Department, Governor Smith has either been badly advised, or has failed to give the proposition the close thought he has so generally shown in other matters. Undoubtedly he was prompted by the laudable spirit of economy that has characterized so many of his suggestions to the legislature, but economy may be as harmful and pernicious under some conditions, as it is beneficial under others. This plan to do away with the Narcotic Drug Commission is certainly such an instance of false economy, when all the facts of the situation are duly considered.

At the time the Whitney law was passed, after a most comprehensive study of the problem of the narcotic drug evil by the special committee appointed for the purpose, Senator Whitney and everyone intimately connected with the investigation, would have been quite willing, we understand, to have had the administration of the law placed under the charge of the State Health Department. But this was not favored by the legislature and a special commission was duly provided for. This commission was appointed in due course, and its personnel is highly gratifying to those who appreciate the importance of the work it is expected to do.

The commission has just started its official labors, and in January, registration forms, official order blanks and copies of the law were sent out to 30,000 physicians, dentists, druggists and others having anything to do with the sale and use of narcotic drugs.

Now comes the introduction of the Twomey bill to abolish the Narcotic Drug Commission, obviously in accordance with the governor's suggestion.

In stating our earnest belief that passage of the Twomey bill will be a very grave mistake, we are not questioning its good

faith, nor the motives prompting it. The Whitney law has not been given a fair trial. Based as it is, on as thorough and intelligent investigation of drug addiction as has ever been conducted, definite and far-reaching results have been anticipated from this law. It is complicated to be sure, and has several points open to controversy. But it represents an honest, sincere attempt to relieve in a human and broad-minded way, one of the greatest evils of the day. Justice to all concerned has been a fundamental consideration throughout the law. Some inconvenience and annoyance may be caused medical men and druggists in the practical operation of the Whitney law, but this has been made necessary by the depravity of a few unscrupulous members of the medical and drug professions, and after all, cheerful as well as faithful compliance with the unpleasant features of the law should be looked on as the contribution of honest individuals to the attempt at correction of a terrible social menace.

The Whitney law, even with such faults as it may have, is certainly the most sensible and practical attempt to correct the abuse of narcotic drugs, stop their illicit and clandestine sale, and to try to restore those who suffer from drug addiction to health and lives of usefulness. To interfere with the operation of the Whitney law now—a piece of legislation prepared only after the most careful and painstaking consideration of the problem—will do immeasurable harm. It is ridiculous to suppose that the administration of the absolute essential features of any effective law to regulate the sale and use of narcotic drugs can be attended to as efficiently by one man in the Health Department, possibly with other duties to perform, as it can be by the five members of the present commission, with their special interest in the problem of drug addiction and the knowledge of the evil they are known to possess. The actual saving in expense is so comparatively small, that the proposed change might raise the suspicion of some ulterior motive, but for the confidence we have in the purposes of Governor Smith, and the fact that the proposition is in line with his avowed effort to reduce all State expenses to the minimum.

In all fairness, however, to those who gave so much thought and conscientious effort to the investigation responsible for the Whitney law, and because we realize, not

only the confusion that will be caused among honest doctors and druggists who have prepared themselves to fulfil the present law in a spirit of cooperation, but because we know the joy that will be felt in the ranks of the crooks who supply the "underworld" with its "dope," we earnestly protest against emasculating the Whitney law by abolishing the Narcotic Drug Commission until it has been given at least a year's fair test.

We sincerely hope our legislators will see the justice of our plea and kill the Two-mey bill, since its passage at this time will not only invalidate the work of those who have tried so hard to solve the problem of drug addiction, but will render the situation more menacing than it has ever been.

The Drug Situation.—According to an editorial writer in the *Survey* (Mar. 15, 1919) "the United States Supreme Court has handed down two decisions which will have an important bearing on the future administration of the Harrison law regulating the use of narcotic drugs by forbidding any person to dispose of them to another person except upon a written order on a form furnished by the commissioner of internal revenue, or upon a physician's prescription. As the order forms could be obtained only by dealers, physicians, druggists and the like, the only way in which anyone could legally obtain narcotic drugs for personal use was from a physician or upon his prescription. While there was some doubt as to the constitutionality of the provision of the act limiting the persons who could obtain order forms, this provision has always been enforced pending a Supreme Court decision definitely settling the point. The provision with regard to physician's prescriptions, however, has been open to serious question. Early rulings of the commissioner took the ground that a physician had no right to prescribe for a drug addict except in connection with treatment for the purpose of curing the habit, the good faith of such treatment to be evidenced by progressively reduced doses. Since there was considerable doubt as to whether the law really supported this construction and also as to its constitutionality if so construed, and because, furthermore, of the medical opinions referred to below, this ruling was allowed to lapse; and

the practice has grown up among reputable physicians, with the tacit approval of the federal officials, of prescribing or dispensing to addicts their customary daily or weekly supply until such time as it might be practicable or convenient for the addict to undergo treatment for a cure.

Now comes the decision of the Supreme Court, rendered March 3 in the Webb and Doremus cases by a vote of five to four, holding not only that the clauses relating to order forms and regulating the dispensing and prescribing by physicians are constitutional, but holding further that the latter clause is to be construed in such manner as to forbid a physician to prescribe for an addict except as part of a course of treatment for the purpose of curing him. Enlightened medical opinion holds that drug addiction, once firmly established, is not a mere habit or symptom of weakness of will, but that it is a physical disease. Specialists holding widely different views, as to the precise pathology of the condition and as to the proper technic of treatment, agree that a confirmed addict physically needs his customary dose, and that it is dangerous to his health, and sometimes to his life, to cut off his supply without appropriate medical treatment. Most of the medical authorities are convinced also that the so-called "gradual reduction" method, unaccompanied by medical care in an appropriate institution, is not capable of successful application. The average addict is earning his own living, if not supporting a family, and the effect of gradually reducing his dose, while not so severe as complete withdrawal, is such as to render him incapable of attending to his business while the process is going on. Since the gradual reduction method takes much more time than any other, the addict as a rule cannot afford it, and most intelligent addicts have no faith in it as a satisfactory cure even where it is practicable to use it.

It was these considerations, coupled with the fact that there are not sufficient accommodations for even a respectable fraction of the total number of addicts in existing institutions available for their treatment at any one time, that were largely followed without delay by public authorities thruout the country where there is not sufficient equipment already in existence; the result may be great numbers of acutely suffering men and women whose customary doses have been suddenly withdrawn."



THE PRESENT STATUS OF THE CANCER PROBLEM.¹

BY

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Cancer Hospital, etc.

Cancer is still a pressing problem, as it has always been. In spite of millions of dollars spent or invested in cancer research, countless animal lives sacrificed, and uncountable hours of patient and unremitting investigation by numberless intelligent and able workers, it is acknowledged by all that the laboratory has not discovered the cause of cancer or aided materially in the solution of the "Cancer Problem."

It is also well recognized that the strenuous and untiring efforts of innumerable surgeons, many of them of very great skill, have not solved the problem of the cure of the disease; for, according to the yearly Mortality Tables issued by the United States the death rate of cancer has steadily *risen*, with a fearful certainty, almost 30 per cent. since 1900, while that from tuberculosis has *fallen* in the same degree, 30 per cent. during the same period, under careful medical surveillance. Moreover, during 1915, when surgical activity was at its highest, owing to the active propagandism for early and radical surgical removal, the

year before, the increase in the death rate from cancer was over double the average increase of the five previous years.

It is acknowledged by all that under the past views as to the local nature of cancer, and its treatment by excision, the ultimate mortality of the disease is 90 per cent. of all those once attacked. Would it not be well, therefore, to stop and consider whether our former attitude toward cancer is correct, or whether there is not a "Real Cancer Problem" which will give better results? If any other disease presented such a steady and alarming increase in its death rate would we not stop and consider if our treatment were the best possible? If with the introduction of antitoxin the mortality from diphtheria had steadily risen until it was about 90 per cent. of all cases, would we persist in employing it? And yet the profession and the laity go blindly on, with the idea that surgery offers the only hope of reaching cancer. The value of the X-ray and radium may be serviceable in certain cases to remove actual lesions, but their value is extremely limited, and can no more reach the real cause of cancer than can surgery.

A brief consideration of the present status of the cancer problem, therefore, may not be without interest.

While the laboratory has not at all solved the cancer problem, it has contributed not a little toward establishing negative facts,

¹ Read before the Middlesex (New Jersey) County Medical Society, March 19, 1919.

and also some positive, which lead up to a more correct understanding of the real nature of the disease and its prevention and treatment. The reason why many of the research studies on cancer have not been productive of positive results is because they have proceeded largely along histologic lines and inoculation experiments on lower animals, and not enough on clinical grounds and bio-chemistry.

But all this laboratory and other research work has established some facts which are of the utmost value in connection with a study of the constitutional relations of cancer, which may be briefly mentioned. The best authorities agree that:

1. Cancer is *not* contagious or infectious, altho certain new growths can be inoculated in some animals; but human cancer cannot be transplanted on animals, and no surgeon, nurse or pathologist has been infected.

2. Cancer is *not* caused by a micro-organism or parasite, altho many micro-organisms have been found in cancerous lesions, but none of them have been established as a cause.

3. Cancer is *not* wholly the result of traumatism, altho local injury may induce its localization in some particular region.

4. Cancer is *not* to any appreciable degree hereditary, altho some tendency in that direction has been found in certain strains of mice.

5. Cancer is *not* due to occupation, altho it is more common in some pursuits than in others.

6. Cancer is *not* altogether a disease of older years, altho its frequency is influenced by advancing age.

7. Cancer does *not* especially belong to or affect any particular sex, race, or class of persons.

8. Cancer is *not* confined to any location or section of the earth, but has been observed in all countries and climates.

While laboratory and other research have yielded mainly negative results, and have not demonstrated any real cause of cancer, they have by elimination opened the way for study along other lines, which are bright with promise, and confirm views which have long been briefly expressed by surgeons and others regarding the constitutional nature of the disease.

Some *positive* results of research are therefore encouraging.

1. The local mass, which we call cancer, represents but a deviation from the normal life and action of the ordinary cells of the body.

2. Certain changes have been demonstrated microscopically in the polarity of cells about to become cancer-genetic, with altered relations of the centrosome to the nucleus, all being influenced by disordered metabolism.

3. Much in laboratory studies on the bio-chemistry of cancer has confirmed the clinical and statistical observations fast accumulating.

4. The blood in advancing cancer shows many manifest changes, indicating vital derangement of the organs which form blood, and which therefore control the nutrition of cells.

5. The secretions and excretions of the body in the early and late stages of cancer have been shown to exhibit departures from normal which are of importance in its causation.

6. Cancer tissue has been shown to contain an element which is poisonous to animals and which probably hastens the lethal progress of the disease.

7. Diet has been repeatedly shown by

the laboratory to inhibit the development of inoculated cancer in mice and rats.

8. As laboratory and other research have eliminated the local nature of cancer, they have also established certain medical aspects of the disease which are of the utmost importance.

Finally clinical and statistical studies have abundantly confirmed the correctness of the internal basic cause of cancer.

1. The mortality from tuberculosis has steadily and greatly diminished under careful medical guidance, while that from cancer has increased in almost the same ratio, without proper medical care.

2. Cancer is almost absent among aborigines, living simple lives, largely vegetarian, but has increased steadily among them in proportion to their adoption of the customs and diet of so-called modern civilization.

3. Self-indulgence in eating and drinking, with indolence, has been shown by many to result in increased cancer mortality.

4. The increased consumption of meat, coffee, and alcohol has been shown by statistics from many countries to be coincident with increase in cancer mortality.

5. Great nerve strain and shock have repeatedly been shown to affect the development of cancer, and the enormous nerve strain of modern life seems to be effective, both thru metabolic derangement and by direct action on living cells.

6. While it is impossible to explain just how disordered metabolism induces cancer-genetic changes in cells, it is no more difficult to believe that it does so than it is to understand the intrinsic cause of arterial degeneration, bone changes, obesity, etc., which are recognized as due to metabolic derangement.

7. The spontaneous disappearance of cancer, as occasionally reported, shows that conditions of the system may arise which are antagonistic to carcinosis.

8. Finally, the complete removal of cancerous lesions, in various localities, by most careful dietary, hygienic and medicinal measures alone, without surgery, X-ray or radium, as has been repeatedly reported, shows that there is a constitutional basic cause, of which the local lesion, which we call cancer, is but the *product*.

What then is the present status of the cancer problem? Are we to ignore the accumulating mass of evidence regarding the constitutional origin of the disease, and adhere to the pre-conceived idea that a cancer mass is an idiopathic, rampant, cell growth, without definite cause? Are we to ignore all new teachings, from ignorance, or to neglect them, thru negligence?

The present status of the cancer problem, therefore, resolves itself into this: The disease must be either of a local or of a constitutional nature.

Those who hold to the former idea must show that the cells of the body are capable of an independent, autogenetic power to take on and continue a misgrowth of a virulent and lethal character, irrespective of the nutritive elements in which they are bathed—and that without any assignable cause. We have seen that laboratory and other research have excluded parasitism, and clinical observation has fully demonstrated that the disease is not contagious. Chronic irritation is undoubtedly often the cause of the disease developing in some particular locality, but it must be recognized that any amount of chronic irritation will not determine the presence of a cancerous tumor in every individual, and malignant growths in many internal parts of the body

cannot have such a cause. Hereditary influence has been excluded by Life Insurance Statistics and close clinical studies of intelligent private patients, as has also old age, as the disease occurs both in the young and old. The suppositious influence of "embryonic rests", or pre-natal displacements of epithelial tissue in the production of cancer "wholly fails to reveal why the embryonal cells begin to grow and when growing produce malignant tumors instead of normal structures," as Ewing says.¹ Thus each and every support of a purely local origin of cancer, and its local treatment, has fallen away, leaving nothing to stand on, for laboratory and other research has apparently covered every possible ground.

It is not necessary here to go fully into the argument for the constitutional nature of the disease, the facts regarding which have often been so fully presented on repeated occasions.² The more one sees patients with cancer, early or late, in private practice and studies them most carefully in all respects, the more convincing is the evidence of the correctness of this view. And when one sees day by day the changes which can be produced in them, and the steady disappearance of cancer masses, with a continued improvement in general health, weight and blood condition, under proper dietary and medicinal treatment, as have many physicians and surgeons who have watched cases with me, now for years, the more the conviction forces itself upon one that the local lesion, which we call cancer, is but a *local product* of faulty metabolism which has long existed.

*Janet
Clay
Hawkins*

The treatment of these cases is by no

means an easy task, but requires the most patient, painstaking and prolonged employment of every possible line of investigation and thought, and the broadest application of medical acumen and skill in the use of dietary, hygienic and medicinal measures to meet the varying conditions which may arise. With this there must be a firm conviction which can develop in the patient a confidence in this mode of treatment over a long period. I am sorry to say that in regard to this latter I have sometimes failed, and occasionally when doing well a patient has slipped away to a surgical operation, which has been later regretted, when a recurrence has happened, on the neglect of the proper treatment. It is understood that in all our study of cancer reference is made to true cancer, mainly of deeper organs, and not to cutaneous epithelionia, which is really a local affair, often easily removed by various local measures; and yet many of the arguments for the surgical treatment of cancer have been based on the successful treatment of skin lesions, often with elaborate presentation of screen pictures and patients.

There must, of course, be some beginning of cancer, in the departure of a normal cell or cells from a previous habit of homologous formation of other cells, to a heterologous action. As Ewing¹ says "carcinoma does not necessarily spring full fledged into being, but is to be regarded as a process which exhibits stages of evolution, which gather momentum as they progress." But how this beginning occurs no one has ever known, and possibly no one ever will know, as Ribert says "no one has ever seen the beginnings of mammary cancer."

The present status of the "Cancer Prob-

¹ Ewing: *Neoplastic Diseases*. Saunders, Philadelphia, 1919, p. 97.

² Bulkley: *Cancer, Its Cause and Treatment*. Vols. I and II. Hoeber, New York; 1915, 1917.

¹ Ewing: loc. cit., p. 453.

lem" is therefore to decide between two quite opposite positions. First, a hypothetical and problematical view, of a local, independent, unexplainable, autonomous decision of certain cells to take on and continue a destructive course, for which immense research has failed entirely to find any ground to stand on. Or, second, the simple and rational belief that a perverted nutrition, perhaps of long standing, influences certain cells to depart from their normal mode of action, and take on an abnormal activity, and pursue a malignant and destructive course, which is naturally kept up by the continued metabolic disturbance. We accept this latter position in regard to many other diseases, why not in regard to cancer?

531 Madison Ave.

OPERATIVE IMPROVEMENTS IN THE TREATMENT OF INFAN- TILE PARALYSIS.¹

BY

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The title of this address is somewhat broader than I had intended, since I wish to confine my remarks entirely to the subject of one phase of the operative treatment of infantile paralysis, namely the transplantation of tendons.

The idea of this procedure is not new. As early as 1880 Nicoladoni proposed attaching the tendon of the peroneus longus to the Achilles tendon in cases of paralytic calcaneus deformity, but his results were such as to discourage the operation for almost a score of years. Since 1900 the

operation has been practiced more and more frequently. Two methods have been in vogue: First, that based upon the original Nicoladoni technic, in which the paralyzed tendon is spliced to a strong tendon; second, the method of direct implantation of the substituting tendon into the bone near the insertion of the paralyzed tendon. When the substituting tendon was too short for this purpose, it was lengthened by strands of silk, a method first devised by Lange of Munich.

It was in 1912, while working in Lange's clinic, that my attention was first drawn to the necessity of improvements in the operative technic of tendon transplantations. Lange himself, despite the fact that he had already performed some 2,000 operations, realized that there were imperfections in the method, since his results were all too frequently nullified by the development of postoperative adhesions. He suggested an investigation into the cause of these adhesions and assigned this problem to Dr. Henze of New Haven and me.

In the course of our experimental investigations, which were conducted chiefly on rabbits, we utilized all manner of membrane, thin tubes of rolled silver, petrolatum, bismuth paste, fascia, peritoneum and a vein as a means of ensheathing the tendon. None of these substances, however, prevented the development of adhesions; in fact, with the exception of the Cargile-membrane, more adhesions were present after their introduction than in control experiments in which nothing was used. Finally we followed the suggestion of Biesalski and utilized the sheath of the paralyzed tendon as a physiologic pathway for the transplanted tendon; that is, one tendon was withdrawn from its sheath, cut away from the paralyzed muscle, and the

¹ Address delivered before the N. Y. Physicians' Association, Nov. 27, 1918.

substituting tendon drawn downward by means of a guide suture so as to occupy exactly the position of the original tendon. In all of the cases observed there was complete absence of adhesions, even when the limb was immobilized for thirty days subsequent to the operation.

This clear cut evidence in favor of Biesalski's method indicated to me the importance of coordinating the operative technic with the physiology of the structures involved. Just exactly as the normal relationship between tendon and sheath should be maintained, so, too, the fascial relationship, the tension and the fixation of the transplanted tendon should be made as nearly like the normal as possible. When, however, I tried to follow out this line of thought, I found that our knowledge of the physiology and anatomy of tendons was entirely inadequate for the purpose. No one had as yet considered the nature of the gliding mechanism of tendons. In no book, physiologic or surgical, had the subject of tendon tension ever been brought up for discussion. Despite the thousands of tendon operations, some of the simplest facts relative to their anatomy had never been investigated. It was necessary, therefore, before any comprehensive operative technic could be formulated, that these fundamental questions be investigated. The work was conducted by research on the cadaver, animal experimentation and observations on human beings.

I can best introduce the subject of the anatomy of tendons by a series of cross-sections showing a tendon at various levels above and within its sheath. The first (Fig. 1) shows the tendon about 1 inch above the upper pole of the sheath; note that between the fascia and the tendon is a distinct gap not described in the textbooks.

This space is filled with a peculiarly elastic tissue, consisting essentially of fat cells and elastic fibers. This tissue completely surrounds the tendon and the lowermost muscle fibers, and by means of its elasticity allows the tendon to glide freely to and fro

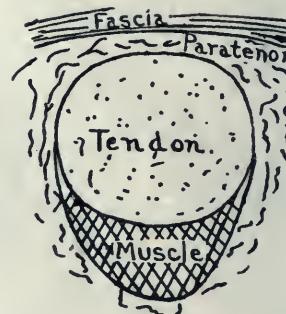


Fig. 1.—Cross-section (diagrammatic) thru the tibialis anticus tendon 1 inch above the upper pole of the sheath.

beneath the rigid fascia. How great this elasticity is can be seen by incising the fascia and lifting the tendon out of its bed. It will then be seen to stretch from 5 to 7 cm. without rupture of its fibers. It is the important tissue in the gliding mechanism

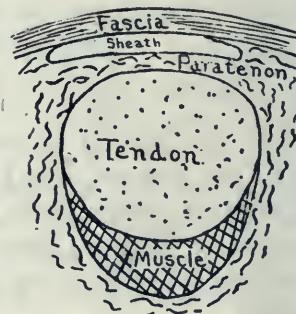


Fig. 2.—Cross-section (diagrammatic) thru the tibialis anticus tendon at the level of the upper pole of the sheath.

of the tendon, and in every operation on the tendons its presence must be recognized and due emphasis laid on conserving its function.

The next section (Fig. 2) is taken thru the upper pole of the sheath. The signifi-

cant fact is that the gap representing the tendon sheath does not develop between the fascia and the tendon but between the fascia and this gliding tissue, which I shall henceforth term the "paratenon."

In the next section (Fig. 3), which lies

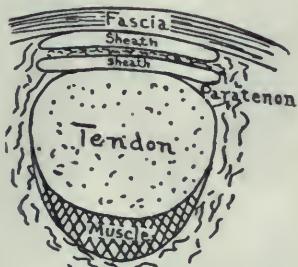


Fig. 3.—Cross-section (diagrammatic) thru the tibialis anticus tendon one-half inch distal to the section shown in Figure 2.

about half an inch distal to the preceding, the sheath is seen to be divided into two portions by a transverse band, the tissue of which is microscopically identical with the paratenon.

In the fourth cross-section (Fig. 4), about $1\frac{1}{2}$ inches distal to the preceding, the ten-

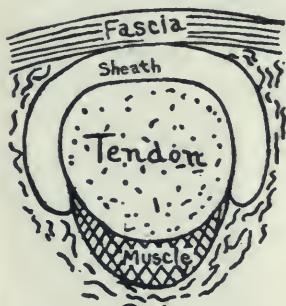


Fig. 4.—Cross-section $1\frac{1}{2}$ inches distal to the section shown in Figure 3.

don sheath is interposed between fascia and tendon and is seen almost to surround the latter. A longitudinal section (Fig. 5), enables us to correlate these four cross-sections. It is evident that the paratenon is prolonged downward into the sheath as a tongue-like structure. The significance of

this is appreciated only when the muscle contracts and the tendon moves upward; then it is seen that a kind of invagination occurs (Fig. 6). The deep pocket of the

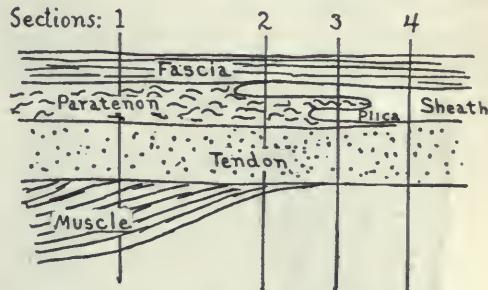


Fig. 5.—Longitudinal section (diagrammatic) of the tibialis anticus tendon, to correlate the preceding cross-sections. Note that the paratenon is prolonged downward into the sheath as a loose fold—the plica.

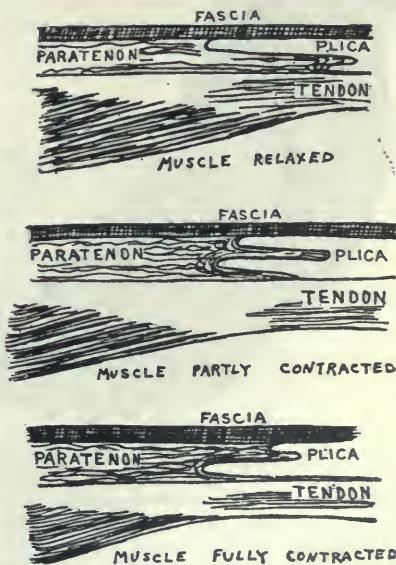


Fig. 6.—Diagrams representing the changes occurring in the form of the sheath during the contraction of the muscle and the consequent gliding of the tendon. Note that the deep pocket of the sheath between plica and tendon increases markedly in length, allowing the tendon to move upward without rupture of the sheath wall.

sheath becomes much elongated, thus allowing the tendon to glide, without destroying the continuity of the sheath wall. The essential, of course, is the elasticity of the.

paratenon which allows this degree of stretching.

By means of simple experiments on dogs, the normal tension of tendons was accurately determined. The method consisted in the division of the tendon shortly above its insertion. The tendon ends separated

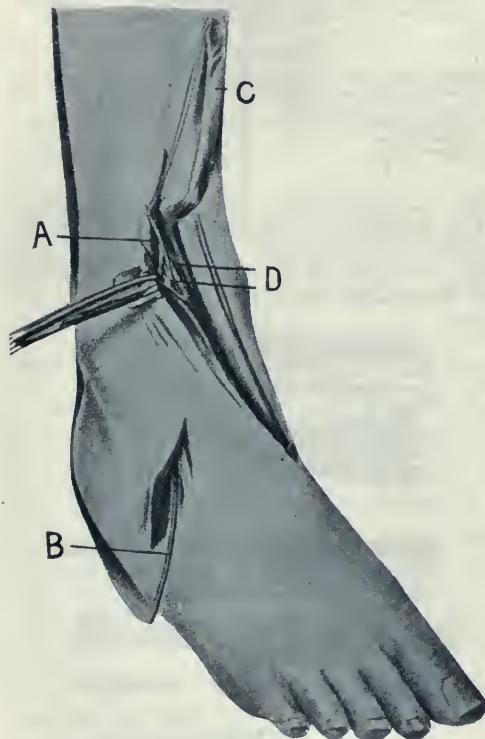


Fig. 7.—Typical physiologic tendon transplantation—transfer of the tibialis anticus for paralytic clubfoot. The probe passing thru the sheath of the extensor longus digitorum emerges at the insertion of the peroneus tertius and serves to draw the tibialis tendon downward thru the sheath of the paralyzed evertors. *A*, retracted fascia; *B* to *D*, probe passing thru sheath of extensor longus digitorum; *C*, tibialis anticus.

for a distance of from 1 to 2 cm. because of the tension to which they were subjected by the muscular pull; by means of a recording instrument, the proximal tendon stump was pulled downward until brought into apposition with the distal. The degree of force represented the tension to which the

tendon was subjected. The figures varied markedly, according to the varying conditions of the experiment, but one fact re-



Fig. 8.—Marked valgus deformity of the foot due to paralysis of the tibialis posticus and anticus.



Fig. 9.—The same foot one year subsequent to tendon transplantations. The patient, a boy of nine, was able to walk without a splint.

mained constant, irrespective of the size of the animal and of the strength of the muscle; when under anesthesia, the limb was held in such a position that the origin of



Fig. 10.—A:—Paralytic valgus deformity due to paralysis of the inverting muscles. B:—The same 6 months after transplantation of the peroneus longus tendon. C:—Two exposures on one plate illustrating the voluntary power of inversion and adduction subsequent to the transplantation.



Fig. 11.—Two exposures on one plate illustrating the voluntary range of extension subsequent to transplantation of the hamstring muscles in a case of complete paralysis of the quadriceps.

the muscle and its point of insertion were brought as near together as possible, then the tendon tension equaled 0; in other words, with the tibialis anticus divided and the foot held in the position of calcaneo-varus, then under anesthesia the two tendon ends came into exact approximation without the use of any force whatever. This simple physiologic fact is readily applicable to tendon transplantation. The normal tension is restored by holding the limb in such a position as to approximate the origin of the

planted tendon is to be brought since the resulting osteogenic activity of the periosteal cells anchors the transferred tendon firmly in place.

The second incision runs along the extensor proprius hallucis. Not the entire tendon but only the upper portion is exposed at first. The idea is that the tendon should be protected against drying until everything is ready for its transfer. When the sheath of the extensor proprius hallucis is opened, it will be seen that it is separated



Fig. 12.—Complete paralysis of the quadriceps femoris subsequent to transplantation of the hamstrings. The boy is able to support the body weight by means of the transplanted tendons.

muscle and the new site of tendon implantation.

The application of the physiologic principle to the technic of tendon transplantations can best be illustrated by describing a typical operation, for instance, the transfer of the extensor proprius hallucis for the paralyzed tibialis anticus. The first incision exposes the insertion of the paralyzed tendon. The tendon itself is slit longitudinally and the subjacent bone is traumatized. Against this traumatized surface the trans-

from the sheath of the tibialis anticus by a fascial septum; by prolonging the incision a short distance upward one reaches a point where this septum stops short and the two tendon sheaths are separated only by paratenon. At this point a small opening is made directly into the sheath of the tibialis anticus; a probe containing a guide suture is passed downward thru the sheath and emerges just over the insertion of the paralyzed tendon. By means of this guide suture, the extensor proprius hallucis ten-

don, which is rapidly freed, is drawn downward thru the sheath of the tibialis anticus and anchored firmly in the bed already prepared for it. In fastening it, the foot is held in the position of calcaneovarus and the tendon is pulled on with just enough force to render its course a straight one. Immobilization should not be continued more than three weeks because by that time firm union has occurred. The patient is then allowed to exercise the transplanted

tendon of muscle balance is most gratifying.

The clinical results are best illustrated by photographs showing the action of the transplanted tendons. (See Figs. 8, 9, 10, 11, 12 and 13.)

That further research, both clinical and in the laboratory will help to perfect our operative methods is my firm hope, as well as that of all men interested in the treatment of infantile paralysis.



Fig. 13.—Paralysis of the triceps surae (Achilles tendon) subsequent to transplantation of flexor longus hallucis and peroneus longus. The patient is able to press the foot downward against the resistance of a 10-lb. sand bag.

tendon, and three weeks later to walk with the transplanted tendon protected from undue tension by an appropriate splint.

Altho no exaggerated claims should be made for the merit of the operations based on these physiologic studies, it is, I think, safe to say that they constitute a distinct advance over our previous technic. Adhesions do not occur to the same degree; the transplanted tendon with practically no exceptions functions excellently and the res-

Reading the Pulse.—In reading a person's pulse, we have to take into consideration the temperament of our patient, (Jones, *Med. Summary*) the slow pulse of the lymphatic, the quick pulse of the nervous temperament, also the large full pulse of the vital temperament. Then again, we must keep in mind the fact that all the emotions are registered in the pulse; joy, grief, anger, fear and sexual excitement; also the pulse will tell you if the patient has had alcoholic stimulants, glonoin, strychnine, quinine, or arterial sedatives to slow the action of the heart.

SOME GENERAL PRINCIPLES IN THE MANAGEMENT OF PNEUMONIA.

BY

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The recent and recurring epidemic of influenza, followed in so many cases by pneumonia, has given the physician exceptional experience in the observation and management of the latter disease, which at all times is very prevalent and is most treacherous as regards prognosis and most unsatisfactory as regards treatment, especially with drugs. As John Bunyan said of tuberculosis that it was the "Captain of the Men of Death," so likewise can the same be said of pneumonia. And as tuberculosis strikes down its victims in the heyday of their activity, so does pneumonia in very many cases, and this has been true particularly in the recent epidemic.

It was the privilege of the writer to see many cases of influenza-pneumonia in the late epidemic, with other physicians, and to observe their methods of treatment, with the view of determining if there was any unity or standard which could be said to exist among various physicians, particularly with regard to the use of drugs. The conclusion arrived at was that each physician, so far as he followed any definite plan, followed his own individual method or scheme which his experience had led him to believe was of value and which he applied in every case—or only treated his cases expectantly or symptomatically. In either case the results were probably not materially different, and the obvious reason is that there is at present no known way of aborting pneumonia or cutting its course

short. It is a disease without any known specific. If, however, any fixed or standard medicinal treatment is of doubtful value, there are certain general principles of management which can and should be rigorously applied to all cases and which put the patient in the most favorable condition for making the struggle against the infection, and they are very much like the principles applicable to all acute infectious diseases.

The paramount importance of these general principles, it has seemed to the writer, has not always been fully appreciated, or in part neglected by the physician in his endeavor to obtain results from drugs or other special methods of treatment. When mentioned they are self-evident and sound but truisms yet they are the basic foundation upon which any and all other treatment must depend and are of infinitely more value than any special medication.

In the first place, as in all acute infectious diseases, *rest* is one of the great essentials; *absolute rest*, what might be called "typhoid-fever rest," as the term is applied to the rest of active cases of pulmonary tuberculosis with fever. This rest should be both mental and physical. The bed of the pneumonia patient should be so arranged that he can be made as comfortable as his condition permits, a firm mattress so that there will be little or no sagging in the middle, and the bed and body clothing so arranged that they may be smooth and without irritating wrinkles. For this purpose, and to facilitate the nurse's duties, a narrow bed is the most desirable. It also enables the physician to make his examinations with greater ease and less disturbance to the patient. Once the diagnosis is made the patient should not be disturbed by frequent examinations, especially by having him sit up in bed for such examinations.

Knowing that he has pneumonia and knowing that if he dies this untoward result is, as a rule, from the toxemia and not from the extent of the local inflammation, it makes little difference whether there is a little more or a little less involvement of the lung so far as the welfare of the patient is concerned, and any added information the physician may obtain from frequent examination is not commensurate with the evil wrought by the disturbance of the patient. The "peace" of the sick room should scrupulously be observed and only the nurse or attendant be allowed there. A calm and peaceful environment is most important for an acutely sick person. All conversation should obviously be interdicted. Again, as long periods of absolute rest as possible are of vital importance and are of more value than a little extra nourishment or too frequent exhibition of drugs, it should be a cardinal rule never to awaken the patient for anything. No medicine is comparable in value with sleep—"tired nature's sweet restorer."

Coughing is violent exercise and no one can rest who has frequent paroxysms of coughing. Therefore the condition not infrequently occurs when, in order to obtain the needed rest, some sedative is indicated solely for the purpose of obtaining rest. Whatever measures will accomplish this should be employed, and these will generally be some form of opium, preferably some of the milder forms. Any danger feared from shutting up the secretions is, in the writer's opinion, less than that incurred from the loss of rest. Likewise pain prevents rest, and in some way or other this must be relieved. Sometimes it is a constant, harassing headache, or more frequently the pain of pleurisy, which makes breathing a penance. Whatever means, either external

or internal, which will alleviate pain, and the simpler the better, should be employed for the purpose of obtaining *rest*. It should never be forgotten that there is no known method of combating the toxemia of an acute infectious disease so efficacious as rest—absolute rest of mind and body. This fact has been signally demonstrated in the rest treatment of active pulmonary tuberculosis.

A second fundamental principle in the management of pneumonia is fresh air. The open-air treatment of pneumonia both with children—even infants—and with adults has abundantly demonstrated the efficacy of fresh air. In the recent epidemic of influenza-pneumonia, the fresh air plan of treatment in the emergency hospitals gave striking results. In many cases the patients were placed directly in the open all day long. At all events the patient should be placed in a room which can be constantly and freely ventilated by sufficient window openings. Often by placing the bed in the middle of the room a free current of fresh air can best be obtained. All too frequently one will find his patient occupying a small room with only one window, and that opening upon a court or in close proximity to an adjacent building or a brick wall. The writer has seen many a case of pneumonia in such a room with the air so foul that it was hardly endurable. Of course, the most perfect arrangement is entirely in the open either on a veranda or sleeping porch. And this holds true as well in the winter as in the milder months of the year.

Third: The feeding of the patient. The writer has always been of the opinion that as pneumonia is a self-limited disease of short duration, the amount of nourishment taken should be moderate and less than in the protracted exhausting acute infectious

diseases like typhoid fever for example. All pains, however, should be taken to administer such nourishment as is most easily digested and assimilated. Above all things flatulence and distension should be avoided, a condition which distinctly increases the gravity of the case. If the physician at each visit will pass his hand over the abdomen, a procedure which can be done without disturbing the patient, he will quickly learn if this condition exists and take speedy measures to remedy it. Milk, as we know, is one of the principal forms of nourishment for fever patients, but it should be mixed with some alkali which lessens the size of the curds. Lime water is a common means of doing this, or it may be accomplished by simply diluting the milk with vichy or Apollinaris water or with barley, oatmeal, rice or egg water. Egg albumen, either raw, slightly cooked, or perhaps as albumen water, is very easily digested. Gelatin preparations are also of value and easily digested. It is doubtful, in the writer's opinion, if meat preparations, such as beef-tea and broths, are either of much nutritive value or necessary and they may cause intestinal putrefaction and distension. The patient should take an abundance of water either pure or acidulated with lemon juice or other acids. To some patients ginger ale is a very acceptable drink. Water should not only be given internally in large quantities but used as well externally by means of sponging or cold packs, when the fever is high. A diet plan should be carefully arranged by the physician in detail, and both the quantity and the hours at which food should be taken indicated. The nurse in turn, or the attendant, should keep an accurate record of the nourishment actually taken. The digestion should be carefully watched and

instant changes made in the diet if digestive disturbances are observed.

Fourth: The care of the bowels. At the outset the bowels should be freely opened, and the common procedure of a mercurial, generally calomel, followed by a saline, has received the approval of long experience. Citrate of magnesia is perhaps the most agreeable and simplest of the laxative salines and this or some other saline should be continued daily in such doses as will ensure free daily movements. If these means are non-effective, enemata may be resorted to.

When the four cardinal principles, *viz.*, absolute rest, fresh air, proper feeding and care of the bowels are scrupulously observed it is probable that we have done the most we can do for our pneumonia patients. Whether drugs, except for emergencies, are of any deciding or definite value is, and is likely to remain, a debatable question. Physicians will always hold varying opinions as to the value of any method of standard medication and whatever their personal experience happens to be in the use of one or another kind of drug treatment they will either believe in it or be skeptical as to its value according as they have been fortunate or unfortunate in its use. Certain it is that in a century of the treatment of pneumonia with all kinds of medication and with no medication at all the mortality has been about the same. The writer is unable to see why any special drug treatment should influence the course of the acute pneumonia infection any more than in the case of an acute tuberculous infection, for example. And it is his conviction that when the pneumonia patient is placed under the best possible conditions, as outlined above, for resisting the specific toxemia of the disease

the most has been done for the patient which can be done for him. When, however, in the later stages of the disease symptoms of vasomotor disturbance or heart failure seem imminent, this is another proposition and appropriate means should, of course, be taken to combat these untoward complications, and each physician will have his chosen remedies for such a purpose.

The one hopeful ray of light looking towards a specific treatment of pneumonia is the recent employment of autogenous vaccine and the results obtained in the use of such a vaccine for the so-called Type One have been so favorable that hope is aroused that eventually we may be enabled, thru this form of treatment, to do artificially, what nature does so dramatically at the time of the crisis.

The writer is conscious that he has only been stating axioms in the treatment of pneumonia, but in the endeavor to obtain a specific solution of a problem the fundamental principles involved are sometimes neglected. In the management of pneumonia, as well as in that of many other acute infections, one is reminded of the witty saying of Doctor Holmes many years ago that "if all drugs were thrown into the sea it would be better for men and worse for the fishes."

Fever Dietaries.—Foods of particular value in fever dietaries are milk, cream, fruit, juices, broths, beef juice, gelatin, eggs, buttermilk, koumiss, cereal waters and gruels, cocoa, malted milk, custards and junket.

No fever needs such careful dietary management as does typhoid.

Physicians acknowledge that the successful treatment of a severe case of typhoid is especially dependent upon two things: proper feeding and careful nursing.—*Med. Summary.*

HEADACHE.

BY

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When we consider that the great majority of our patients in private and clinical practice come with no other complaint than headache, pain or discomfort in the head, I may be pardoned for discussing this all-important symptom, for headache is only a symptom, the result of some underlying condition, and frequently the only symptom. While we must remember that in some instances it is a symptom of a grave condition, in most cases the underlying cause should not inspire one with a grave prognosis.

Two problems, then, loom up in its discussion. First, what is the genesis of headache, and second, what etiologic factors contribute to its genesis and what are its concomitant manifestations?

I. How does headache come about?— All forms of headache are perceived in areas supplied by the trifacial and only in certain forms in limited areas supplied by a few branches of the upper cervicals. These nerves, as we know, enter as roots into their ganglia and thru their dendrites come into contact with the central neurons. Irritation of these sensory filaments or their roots and ganglia produces pain, which is perceived in the area of their distribution. Lesions in the upper neurons are not known to have been productive of pain. But it is a known fact that a lesion in the lower ventral part of the thalamus which contains many sensory tracts, if that be of an irritative nature will produce considerable pain in the opposite half of the body and destructive lesions are known to produce hemianesthesia. Besides the filaments of the fifth in

the dura there are also other sensory filaments, notably those of a vago-sympathetic system, as in cases of headache with vomiting and accompanying pupillary changes. It seems to me to be rational to assume that there are cortical areas which record painful sensations of the type we speak of as well as other sensations, altho we have not been able as yet to demonstrate the particular place by experimentation.

How, then, are the dural nerve filaments irritated? Intracranial pressure, we know, produces headache; but the pressure as such does not alone produce it. We know that pressure on the dura in a circumscribed area may be painless and even brain tumors, altho constantly growing, are frequently attended by periods of rest from headache. There must, then, be an additional factor alongside the pressure. This factor, in all probability, is the accompanying disturbance of circulation in the vascular and lymphatic systems within the tissues surrounding the dural nerves. The neuralgias accompanied by hyperemia of the veins are examples corroborating this hypothesis. Anemia or hyperemia of the dura and, perhaps, also of the pia produce headache as in vasomotor disturbances and in inflammations attending infectious diseases. Such disturbances may also come about thru reflex conditions from disturbances outside of the cranial vault, as from the eyes, nose, ears, etc., which cause contraction of the vessels. It does not seem to me quite rational to attribute headache as a result of toxemias to such reflex vasomotor disturbances, but rather to an irritation of the nerve filaments. Of course all this is purely hypothetical and may conceivably be wrong, but as yet no other theory has been proven.

This leads us to the consideration of the second problem: What are the etiologic fac-

tors contributing to the genesis of headache? It is quite obvious from our clinical as well as pathologic experience that there are functional and organic diseases that are accompanied by headache.

A. Functional headaches.—Frequent forms of headache or rather pains in the head are the various forms of neuralgias, which constitute a great difficulty in the domain of exact diagnosis. The patients usually describe these pains as limited to a particular area of the head supplied by the nerve involved. These pains are sharp, shooting along the course of the nerve, occurring at intervals to be succeeded by a period of freedom. There is also at times a numbness, tingling or burning feeling over the surface of the skin of the involved area and pressure upon the nerve causes the pain to become more intensified, or if no pain present at the time of examination, an attack will be ushered in by such procedure. Sometimes the pain is so severe that automatic spasms are called into play, because stimuli enter into the motor filament completing the reflex arc. Thus trigeminal neuralgia limited to the supraorbital branch will cause twitchings of the eyelids and facial muscles. There is a marked hyperesthesia to cold and pin-prick on the affected area. This condition should not, however, be mistaken for frontal sinusitis which stimulates in some respects a localized neuralgia. Pressure upon the bone along the sinus will cause a dull pain and a transillumination and an X-ray picture should clear up the difference promptly. In addition the nasal discharges of a mucopurulent character should not be overlooked.

Beside the real neuralgias, frontal and occipital alike, there are radiating pains along the course of nerves passing thru infected foci, as is not infrequently the case

in caries of teeth. A careful examination of the teeth should in all cases be made and an impacted or carious tooth removed will promptly relieve this distressing symptom. In unilateral headache it is also advisable to examine the condition of the throat and the middle ear, for in some instances pathologic processes there are the underlying causes of the trouble. The cure of an otitis media or a suppurating tonsil will soon relieve the localized headache.

A severe form of localized headache is the so-called hemicrania or migraine. This is a familial disease and on careful inquiry into the family history one finds that many members of the parents' and grandparents' branches of the family were subject to the disease. These patients will tell you that they are not always subject to headaches, that only at certain periods of time of shorter and again of longer intervals, even after months of rest, they would suddenly experience an intense, boring pain in the temple and at the back of the head. They become completely prostrated, are hypersensitive to light, sound and touch and they prefer to lie quietly alone and not be spoken to in loud tones. They are annoyed by the least disturbance, even if their resting place is only slightly shaken. Nausea and vomiting are frequent accompaniments and occasionally diarrhea also. During the attack the patient, as a rule, feels cold, and heat is disagreeable. There is usually pallor of the surface; occasionally there is a cold, clammy perspiration, but the face may also be flushed on the affected side.

In some patients there is an aura the evening before the attack characterized by irritability, indifference and inability to perform exacting physical or mental work. In most cases, however, significant prodromata appear in the early morning. They arise with

a feeling of lassitude, they feel that the sleep was deep and heavy, they dreamed restlessly and feel broken up. Within a few hours the characteristic unilateral pains begin. They are deepseated and the patients complain of a feeling "that the head is bursting." These attacks last from eight to twelve hours and vary in intensity with different individuals. The attack may in some instances last for a few days and develop into a status hemiplegicus. After the attack the patients of a robust constitution recover completely and quickly, but the weaker ones recover slowly, still suffering from after-effects.

Without going into an extensive discussion of the many therapeutic measures advocated from time to time, I prefer to state that I have met with fair success with the following measures: Daily evacuation of the bowels, a non-stimulating, bland and easily digestible diet, no canned or preserved foods, regular habits of life and as a medication I give thyroid extract in $1/10-\frac{1}{4}$ gr. doses t. i. d. on the hypothesis that the affection is caused by an excess of secretion of the choroid plexus in the lateral ventricle on the affected side as a result of a vasomotor disturbance. Whether this is so or not, the fact is that the most intractable cases that did not yield to the old form of treatment, with coal tar preparations and salicylates, were very much improved. The intervals between attacks became longer, the intensity of the seizures became lessened and finally complete cures were effected.

Anemia, whether of a chlorotic character or as a result of loss of blood, is as a rule accompanied by headache of the dull and pressing type, not very severe in most cases. This headache may be frontal or parietal only and also general. It starts late in the day and the patients are relieved

after a night's rest. It is obvious that the anemia requires intense treatment. A nourishing diet and long periods of rest in a recumbent position, best perhaps to keep the patient in bed for several weeks and with that iron and arsenic will prove very effective. In cases of severe loss of blood as in menstruation or affections requiring surgical interference, prompt treatment along these lines is indicated.

A form of headache that frequently proves intractable for a long time we meet in toxemias and the so-called autointoxication. It is general in character and most intense on rising. In the latter type we have a history of indigestion and obstipation which give rise to absorption of toxic products into the circulatory system. Some authors believe that the headache in toxemia may be due to a reflex action as in uremia and acetonemia. In all probability, however, it is due to irritation of the dural nerve filaments of the fifth and sympathetic nerves by the toxic products. It is perfectly obvious that the removal of the underlying condition will eventually cause the headache to subside.

Next in frequency to hemicrania is the exhaustion headache of the neurasthenic. It is characterized by a sense of oppression, a constriction and a heaviness of the head. The pressure is most frequently described as situated behind the forehead and radiating down into the eyes and root of the nose; less frequently in the temples. Some neurasthenics complain of paresthesias of the scalp in the form of sensations of itching, numbness and formication. The intensity of the headache may become aggravated to that of pain, particularly after irritation, excessive worry or undue mental exertion. No matter how intense the suffering may be, at no time do we hear the complaint that

nausea or vomiting accompanies the headache. As a matter of fact these neurasthenics have no gastric disturbances and appear quite well fed. The patients complain of constant headache and never remember when they first began to suffer. "It is months or years," they tell us. If alongside of this form we find a history of backache, gastrointestinal atony, neuromuscular weakness, cerebral depression, mental irritability and insomnia, you may be reasonably certain that you are not dealing with an organic affection.

As you know the outlook is good in the great majority of the cases, who recover after months of treatment. In some cases, however, we face a complete breakdown and the patient becomes a confirmed nervous invalid. These patients are usually of a psychopathic stock and develop some form of psychosis. Cases before twenty are apt to yield readily and relapse frequently. After forty the prognosis is less hopeful as a rule, for we are dealing here in all probability with a psychopathic constitution.

As to treatment very little can be said. Bodily and mental rest are the first prerequisites. A sojourn in the south during the winter months and in the mountains in the north during summer is ideal. But what of the poor shop girl? And a great number of them are neurasthenics. And yet we need not despair. We can well regulate their life in a manner as to make the condition bearable and in time improve them greatly. Fresh air and sunshine in their dormitories and workshops is now obtainable and a warm bath every day before retiring every one can afford. A plain, bland, nourishing and easily digestible diet is cheaper than the various delicatessen, canned foodstuffs and preserved articles of diet with the beautifully looking French pastries. To eat reg-

ularly on time and have their regular sleep of nine hours daily the poorest of the poor can well afford. In addition a little bromide of potassium, say gr. XV t. i. d. after meals well diluted with water, will afford relief in most cases in the long run.

Of the headache of hysterics we can say that since hysteria will imitate any disease and since it is a condition as a result of suggestion, it can best be dealt with, if at all, by suggestion. It may assume the characteristics of any form of headache. It is comparatively easy to differentiate it from the true forms, since the concomitant manifestations are invariably the well known stigmata of hysteria.

And finally there is a form of functional headache as yet little known and frequently subsumed under migraine or neurasthenia, namely, nodular or rheumatic headache. The majority of the patients are women of middle or advanced age. They complain of a persistent pain over the whole head, beginning in the occiput and nape of the neck and radiating towards the back and the shoulders. It does not cease at night and is rarely associated with nausea and never with vomiting. Chills are a frequent complaint especially during inclement weather and when associated with exposure to draughts. Edinger considers the exposure to localized chill from washing the hair without properly drying it to be a frequent cause. The underlying cause is a rheumatic affection.

On careful examination one can find nodular indurations of various shapes and sizes from a millet seed to a bean in the subcutaneous tissue of the scalp, the occipital fascia and fascia of the nucha and sides of the neck as far as the shoulders. They are very tender to touch. They are not

commonly found in the frontal and temporal regions.

The prognosis is entirely favorable. The treatment consists in a purin free diet, salicylates, moist hot applications and massage.

B. Organic headaches.—The most intolerant form of organic headache and not always amenable to treatment is the headache due to intracranial pressure. It is most intense in the frontal and occipital regions and rather constant, accompanied in most instances with projectile vomiting. At times there are intervals of freedom from pain of longer or shorter duration, because the brain seems to be able at times to accommodate itself to this pressure for a short time until it becomes overwhelming again. It is rather slow and insidious in onset and in most cases we find early a choked disc in the eye grounds.

This intracranial pressure headache we find in a brain tumor, a brain abscess and in internal and external hydrocephalus. The concomitant symptoms depend entirely upon the site of the neoplasm, and not upon the character of it. Thus we might have a hemiplegia, motor or sensory aphasia, convulsions of the epileptiform kind, tremors, ataxia, nystagmus, speech defects, a paralysis or irritation of one or more cranial nerves, the syndrome of acromegaly or dyspituitarism or even a psychosis, or again no other sign than choked disc. In cases of involvement of the hypophysis the X-ray will be of service as it shows an enlarged sella turcica.

Relief, if only temporary, can only be afforded by surgical measures, such as a decompression in the case of tumors, frequent lumbar punctures in hydrocephalus and the prompt evacuation of pus in cerebral abscess. I know of no medication that may be of any service.

Then we have headache in brain syphilis. Like leutic pains elsewhere it displays nocturnal exacerbations and not infrequently restricted to that time. As a rule it is most intense in the occipital region. An irregular, unequal pupil reacting sluggishly to light and accommodation or even an Argyll-Robertson pupil is the constant accompaniment and at times the only objective sign. Then again optic atrophy is not infrequent. Of the other cranial nerves the third, fourth and sixth are most frequently involved, giving us diplopia, unilateral or double ocular ptosis and ophthalmoplegia. At times a Bell's palsy is present with complete reaction of degeneration. In one instance I have seen a double facial paralysis. Then again, like in cerebral neoplasms we may have all sorts of focal signs, even epileptiform convulsions, depending entirely upon the site of the lesion. A history of venereal infection is as you well know, not infrequently denied. The Wassermann reaction of the blood and spinal fluid should in all cases not be omitted. If negative it should not deter us from subjecting the patient to antiluetic treatment. The results are as a rule very gratifying.

Of a rather rare occurrence are organic affections of the skull attended by headache. This is as a rule purely local and should not be mistaken for the general type. A careful percussion of palpation will at once reveal either rarified or thickened places. The traumatic periostitis and syphilis of the skull and metastatic carcinomata reveal such defects. Of course it goes without saying that the X-ray will at once clear up any doubt. In the case of the traumatic affection surgical interference may prove of value, in the case of syphilis antiluetic treatment is indicated and in the case of carcinoma fu-

ture generations may have something to say about it.

And finally I may mention a disagreeable form of headache in cases of cerebral arteriosclerosis. It doubtless occurs mainly because the control of the regulating vasomotor apparatus over the inelastic vessel walls of the brain and its membranes have become uncertain and irregular, and in most advanced cases paralyzed. The vasomotor nerves themselves supplying the vessels undergo alteration thru the atheromatous process. To this must be added the anemia resulting from the narrowing of the vessels and the resulting malnutrition. This headache is associated with vertigo, quite obstinate in character, paresthesias, at times dyspnea, and not infrequently memory and intelligence defects. It generally manifests itself as an oppression localized in the forehead and may assume an obstinate and harassing character. At times the patients complain of exacerbations of severe pain. And the severity frequently is a prodromal sign of an impending cerebral hemorrhage or thrombosis. The examination of the eye grounds will reveal tortuosity of the vessels and in that case complete rest may ward off a hemorrhage.

Of course the prognosis of this affection is unfavorable. As to treatment one can advise the rationale of that in general arteriosclerosis, namely, physical and mental rest, regular habits of life, a non-stimulating diet, exclusion of all forms of alcohol and small doses of iodid of potash, say 5 gr. t. i. d.

I have attempted here to enumerate the forms of headache we meet in our ambulant practice, not considering the headaches of adolescence and those of acute infectious diseases. To attempt to incorporate those and others of rare occurrence would not be possible within the scope of a short paper. It

was my intention to show that it is not after all a simple matter to treat headache successfully and that each case is a law unto itself and must be most carefully examined so that proper treatment may be instituted.

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THE PNEUMO-CATARRHAL DIATHESIS, PREVENTION AND TREATMENT OF PNEUMONIA AND OTHER RESPIRATORY INFECTIONS BY MIXED VACCINES.

BY

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The scope of this subject is so wide and expansive that no more can be attempted in this preliminary communication than a rough outline of the general principles governing the prevention and treatment of bacterial infections of the respiratory tract.

Material Available for Investigation.—Diseases of the respiratory system are common in South Africa; and the community scattered along the sixty miles of "Reef," aggregated into various townships of the Witwatersrand is no exception. The prevalence of these infections on the Rand is partly due to the dry, dusty climate with its rapid changes of temperature, partly to the almost universal incidence of catarrhal infections among workers, native and European on the Witwatersrand goldfields, the inhalation of the fine particles of silica, always present in mine air and the rapid changes in temperature experienced in gold-mining being contributory causes. Consider-

able material, therefore, is available on all sides for the study of this most interesting and important group of diseases.

As Acting Bacteriologist for the Transvaal, Acting Pathologist to the General Hospital, Johannesburg, subsequently Assistant Medical Officer of Health, Johannesburg, and later as Director of the Clinical Research Laboratories, my various duties have brought me into close contact with these problems in South Africa during the last eight years. In addition, my researches into the pathology of silicosis in man and white rats, and tuberculosis on the Witwatersrand, in association with Drs. Andrew Watt, L. Irvine and W. Stewart, afforded me valuable material for study. Furthermore, a considerable portion of my private practice as a consultant and bacteriologist in recent years has been composed of this type of case. Recently, however, during the widespread incidence in South Africa of pneumonia and other diseases associated with or following on Spanish influenza I have had a unique opportunity of testing the soundness of one's conclusions in this matter on a very large scale. A large number of doses of compound catarrhal vaccine have been issued for the treatment and prevention of the prevailing pneumonia. The results of this mass inoculation will be available shortly for publication, but at the present juncture it is not possible to say more than that the results have been most satisfactory and significant and go far to support the attitude taken up by this paper in regard to the etiology of pneumonia and other respiratory infections.

It appeared necessary to introduce this subject in this way in order that it may be appreciated that altho no statistical evidence will now be produced these conclusions have a definite experimental and ex-

periential basis, which will be elaborated in a later publication.

Method of Investigation.—It is not intended to minimize the importance of the recognition of the various antibodies which have been identified and described from time to time during the last twenty years. It is by such means that we are able to appreciate something of the struggle which goes on between pathogenic microorganisms and the body, and the nature of the various immunologic processes called into play. In recent years the extraordinarily interesting phenomenon which has been named *anaphylaxis* has attracted considerable attention. Much remains to be learned in regard to this most important factor in immunity problems and it would appear that a closer study of *anaphylaxis* as applied to the employment of vaccines and sera for the treatment and prevention of infective diseases, will supply the missing link in the chain of evidence required for a more complete understanding of what takes place when these therapeutic agents are employed. Since Richet's pioneer work, an outstanding publication, is Besredka's "Anaphylaxie et Anti-anaphylaxie." Besredka shows that the danger of anaphylactic shock in a sensitized individual can be prevented by the administration by various routes, of small doses of the particular serum applicable. Such a protective injection he names the *anti-anaphylactic* injection. It is necessary to emphasize the importance of these phenomena here as the writer is firmly convinced that these factors play a very important part in vaccine and serum therapy, especially in therapeutic inoculation. In no group of diseases are anaphylactic phenomena more evident and important than in the group of respiratory diseases under consideration. No satisfactory explanation can otherwise be offered

of the fact that an injection of mixed vaccine of moderate strength, such as is commonly used for prophylactic inoculation against respiratory catarrhs, when inoculated into an individual comparatively free of catarrh produces very little local reaction and practically no general reaction; if the same dose be inoculated in the same individual in the presence of an acute respiratory cold or catarrh, the local and general reaction is enormously increased, out of all proportion to the amount of vaccine used, and the resulting effects may be so severe as to confine the patient to bed for a week. Obviously some change must have taken place in the individual to produce such vastly different results in the two circumstances indicated. This astonishing change is due to the development of anaphylaxis, produced by the activities of the causative bacteria present in the acute attack. This phenomenon is so constant that it is possible to diagnose the presence or absence of respiratory catarrh without any clinical evidence by merely noting the results of the inoculation of a suitable dose of mixed vaccine, prepared from the organisms commonly found in respiratory infections. The symptoms, local and general, following the inoculation of a mixed vaccine in an individual suffering from respiratory catarrh are closely analogous to similar conditions set up by the inoculation of tuberculin in individuals suffering from pulmonary tuberculosis. In both cases the phenomena are largely anaphylactic. I am satisfied that anaphylactic phenomena afford a much more reliable guide to the practitioner as to dosage and interval in vaccine therapy than any observations and investigations, no matter how elaborate, in regard to the presence or absence of demonstrable specific antibodies in the blood. The latter method is of purely

historic interest. I have, therefore, not followed the method of investigation adopted by previous workers in this field of research, that of almost slavish adherence to serologic tests, such as agglutination and opsonic estimation—as I do not regard these tests as satisfactory guides or reliable indicators of established immunity, or of practical service in the carrying out of treatment with vaccine or sera. The presence of specific agglutinins in the blood is of service in the diagnosis of certain massive systematic infections, and in certain laboratory experiments, but in the investigation of prophylactic and therapeutic inoculation other factors, immeasurably more important, are to be considered.

Symbiotic Activities of Microorganisms.—It would appear that the very important part played by symbiosis in bacterial infections of the respiratory organs is not sufficiently appreciated. There is no doubt, however, that the phenomenon is more fully appreciated at the present time than some few years ago. The attitude taken up in regard to the preparation of an autogenous vaccine for a case of bronchitis, for example, some seven or eight years ago, was that it was only necessary that the vaccine should be prepared for the predominant organism found in the sputum, very commonly *streptococcus*. The next stage, however, was the appreciation of the possibility that all microorganisms commonly found in the sputum in these cases might have some etiologic significance.

The result was the preparation of what I used to call a *pot pourri* vaccine, prepared as it was from all the organisms isolated. At this time, however, no attempt was made to isolate each organism separately in pure culture, the vaccine being prepared in a more or less haphazard manner from the organ-

isms developing on culture. A still further development was to isolate *all* the micro-organisms from the sputum, to prepare and standardize separately the emulsion of each organism isolated, finally combining all emulsions in definite proportions in a mixed vaccine. Experience has proved that provided the specimen of sputum is properly collected, the mouth and teeth having been previously well cleaned with a brush and boiled water, it is not wise to ignore any pathogenic organism developing on human blood agar. At this point it is necessary to emphasize the importance of the nutrient media employed. In regard to respiratory infections it is advisable to employ always blood agar, preferably human blood agar, and to observe cultures and sub-cultures for at least four to five days, owing to the slow growth of some of the organisms. The employment of a mixed vaccine, prepared in this manner, has been justified by the more efficient preparation obtained and the infinitely more satisfactory clinical results. All this is a tribute to the importance of appreciating the role of symbiotic mixed infections in diseases of the respiratory system.

The Pneumo-Catarrhal Diathesis.—It is a matter of common observation that while some individuals go thru life entirely free of respiratory diseases such as catarrhs, bronchitis, broncho-pneumonia, pneumonia, etc., other individuals suffer to a greater or lesser degree from one or all of these afflictions from time to time. In some instances one attack succeeds another until a chronic inflammatory condition is established which occasionally shows more acute exacerbations. In view of the mode of spread of these diseases by means of infected droplets of sputum sprayed into the air in coughing, sneezing, etc., these infective conditions

are liable from time to time to assume epidemic and even pandemic incidence as illustrated by the prevailing influenza pandemic. There is no doubt that the initial infection in the majority of cases in this epidemic is *B. influenzae* but that sooner or later other organisms, notably *streptococcus*, and *M. catarrhalis*, *streptococcus mucosus capsulatus* and *pneumococcus* become of considerable etiologic importance. Doubtless many of the cases diagnosed as influenza are not true influenza but due to one or other of the catarrhal organisms acting separately or as a mixed infection. An interesting point in the influenza epidemic in South Africa is that the most serious and fatal cases do not necessarily occur in young, old, or feeble members of the community, a heavy mortality being noticeable among adults in their prime. It is evident, therefore, that mere physical fitness is not an adequate protection against the onslaught of these respiratory infections. These phenomena can only be sufficiently explained by the appreciation of the etiologic significance of the *pneumo-catarrhal diathesis*, which may be defined as a constant diminished resistance to respiratory infections, constituting a definite predisposition to bacterial diseases of the respiratory organs. This diathesis must be carefully distinguished from the irritating catarrhs associated with various industrial processes in which the symptoms are excited in all workers by the inhalation of irritant particles suspended in the air, e. g., silicious particles in the air of gold mines. Doubtless, however, the individual possessed of a *pneumo-catarrhal diathesis* exposed to such conditions would suffer more severely from respiratory infections than the ordinary individual in whom the resulting catarrhal processes may be regarded as largely protective.

The success of prophylactic inoculation against infective catarrhs of the respiratory passages indicates that the *pneumo-catarrhal diathesis* can be artificially combated by means of specific immunization. The tissues of the lungs are richly supplied with blood so that it is not at all surprising that bacterial disease of these organs should be so amenable and sensitive to specific therapy. On the other hand the failure of all other non-specific remedies to influence the *pneumo-catarrhal diathesis* is not surprising from an anatomical and bacteriologic point of view. The frequent presence of virulent microbes in the air from coughing, sneezing, etc., their ready access thru the inspiratory current of air to vulnerable points of attack, the rapid absorption of bacterial toxins from the lung tissues richly supplied with blood and the vulnerability of the lung tissues to irritant and noxious vapors and foreign bodies suspended in the air, all require the most efficient system of protection to maintain freedom from respiratory diseases. *A constitutional weakness in such defensive measures indicates a pneumo-catarrhal diathesis which can only be successfully reversed by specific immunization against all those pathogenic bacteria commonly conveyed in the air breathed.*

Etiology of Pneumonia.—In 1883 Friedlander described an organism now known as *B. Friedlander*, as the causal organism of pneumonia.

In 1884 Fraenkel published a very full and accurate description of the characters of the *pneumococcus* which he showed was identical with the *coccus of sputum septicemia* previously described in 1880 by Pasteur and Sternberg as being present in healthy human saliva.

Since this time *pneumococcus* has been recognized as the chief etiologic factor in

acute pneumonia. From a bacteriologic and clinical point of view there are various disquieting factors which call in question the soundness of this view and it is now proposed to show that this conception of the etiology of pneumonia is always narrow and incomplete, and frequently totally incorrect.

(1) *The pneumococcus is not present in all cases of acute lobar pneumonia.* This point is well illustrated by a careful investigation into six cases of acute lobar pneumonia selected by a leading practitioner with expert knowledge in this disease as typical cases. The sputum was carefully collected and within an hour or two inoculated into white rats. Cultures were also made on human blood agar in each case. Two rats died within twenty-four hours, the heart blood in each rat when cultivated on human blood agar giving a growth of *pneumococci*. Cultural examination of the sputum in these two cases, however, gave *streptococcus*, *M. catarrhalis*, *streptococcus*, and *pneumococcus*, in one of these cases, and *streptococcus*, *M. catarrhalis*, *streptococcus mucosus capsulatus*, *B. influenzae* and *pneumococcus* in the other case. The other rat also died but *streptococcus* only was recovered.

In the three other cases the rats were unaffected and cultivation of the sputum gave respectively:

(1) *M. catarrhalis*, *streptococcus* and *B. influenzae*.

(2) *M. catarrhalis*, *streptococcus*, *staphylococcus*.

(3) *M. catarrhalis*, *streptococcus*.

Thus in six typical clinical cases of acute lobar pneumonia *pneumococcus* was only present in 33% of the cases.

(2) *There is no consistent lesion in the lung in pneumococcal infections.* The pathologic conditions found are extremely

varied, sometimes lobar, sometimes bronchopneumonic, sometimes quite indefinite as to anatomical distribution of the pathologic process. Histologically moreover the lesions are not uniform.

From a purely bacteriologic point of view, therefore, the objections to the acceptance of *pneumococcus* as the sole etiologic factor in acute lobar pneumonia are weighty.

Clinical Objections. Atypical Pneumonia. —Whatever may be accepted as to the etiology of acute lobar pneumonia the outstanding fact in regard to the disease diagnosed as *pneumonia* in general practice is that the majority of cases are atypical. Refinements of diagnosis such as *catarrhal pneumonia*, *broncho-pneumonia* may be attempted but the attitude taken up is that any inflammatory condition of the lungs producing adventitious sounds, such as rales or crepitations, some dulness, cough and sputum, purulent or blood-stained, is broadly *pneumonia* and that this disease is due to the *pneumococcus*.

This is an illustration of the disadvantage of watertight compartments and over specialization in medical practice. The bacteriologist is not a clinician; the clinician is not a bacteriologist.

Extensive experience has demonstrated without any shadow of doubt that these atypical conditions are invariably due, from first to last, to a mixed infection with or without *pneumococcus*. This fact is supported by hundreds of examinations of sputum which have been carried out both culturally and by mouse inoculation. The commonest organisms in atypical pneumonia in my experience, are *M. catarrhalis* and *streptococcus*, other organisms being *streptococcus mucosus capsulatus*, *pneumococcus*, *B. Friedlander*, *B. influenzae*, *B. septus* and *staphylococcus*. Furthermore, in

those cases of acute lobar pneumonia in which *pneumococcus* is found, cultivation of the sputum rarely gives a pure culture, other organisms being demonstrable commonly in the early stages, and invariably in the later stages.

It will be readily understood therefore, that the etiologic factor in pneumonia typical and atypical is definitely a mixed infection. It is not necessary to dwell on the mortality from pneumonia in spite of the exhibition of pneumococcus vaccines and sera. It is certain, however, that these specific preparations are used in many cases in which they are partially or totally inapplicable as they provide only for the pneumococcus element, the symbiotic activities of other microorganisms being ignored.

It is difficult to estimate, but probably less than 25% of the cases diagnosed as *pneumonia* in the average general practice are due to an initial infection with the *pneumococcus* and in any case secondary infections are present sooner or later in all cases of pneumonia.

The majority of cases diagnosed as *pneumonia* are due from first to last to a mixed infection in which *pneumococcus* may or may not be included. Briefly, the evidence which is accumulating as to the value of therapeutic inoculation in cases diagnosed as pneumonia with a mixed vaccine prepared from numerous strains (150) of *M. catarrhalis*, *streptococcus*, *pneumococcus*, *B. influenzae* and *B. septus*, *streptococcus mucosus capsulatus*, *B. Friedlander*, and *staphylococcus*, indicate that whatever objections may be raised to the etiology of pneumonia as set out above, the clinical results fully justify this statement. Prophylactic inoculation of a stronger vaccine from these organisms has similarly given most gratifying results in preventing the onset

of pneumonia, the mortality in inoculated cases which have contracted influenza being trifling.

The prevalence of pneumonia in South Africa during the past few weeks in which the influenza epidemic has raged throughout the land has been very marked, the appalling mortality being almost entirely due to pneumonia. Numerous examinations of the sputum have demonstrated that the symptoms are due to a mixed infection, the virulence of the organisms being enormously raised by rapid passage so that many of the cases are septicemic in type. The employment of the above mixed vaccine in these cases has been the general practice throughout South Africa for some time, and judging from personal observation and numerous reports received, the results have been astounding. Numerous cases ill with pneumonia for weeks have, after one or two injections, shown a normal temperature and pulse, and made, in the circumstances, a rapid uninterrupted recovery. The mortality from pneumonia has also been enormously reduced by therapeutic inoculation with a mixed vaccine. One practitioner reports over a hundred cases and another two hundred cases of pneumonia treated with mixed vaccine without a single death.

As soon as the epidemic started numerous requests for pneumococcus vaccine arrived from all quarters. Steps were taken by urgent circulars to advise in preference the employment of compound catarrhal vaccine, which has produced highly satisfactory and astonishing results. It should be remembered, moreover, that a fair proportion of the cases which have occurred have been diagnosed as acute lobar pneumonia.

The use of a comprehensive mixed vaccine for the treatment of respiratory infections, including pneumonia, largely relieves

the clinician—who is often without the aid of an experienced bacteriologist—of the responsibility of deciding in his own mind the bacteriology of the case before him. No matter what respiratory diseases the patient may be suffering from, whether tonsilitis, bronchitis, bronchiolitis, bronchopneumonia, pneumonia, pleurisy, etc., such a vaccine prepared on such lines would be distinctly applicable. The very simplicity of this line of action must commend itself to the medical practitioner to whom the bacteriology of respiratory infections cannot be without some difficulty. In view of the fact that the sensitiveness of patients suffering from respiratory infections to mixed vaccine, is very marked, the greatest care must be exercised in carrying out therapeutic inoculations to avoid overdosage which is distinctly harmful.

It is realized that it is not possible to close this preliminary communication without careful reference to the valuable work on pneumonia carried out on the Witwatersrand by Dr. F. S. Lister, bacteriologist to the South African Institute for Medical Research. Unfortunately I have for many years been unable to accept the findings of Dr. Lister in this field of research, and feel that the time has now come to place on record my views on the work published in regard to prophylactic inoculation with pneumococcus vaccine for the prevention of pneumonia among the natives employed on certain experimental mines on the Witwatersrand.

Problem of Pneumonia Prevention on the Witwatersrand Mines.—The subject of pneumonia is of no little interest in South Africa, especially on the Rand, where experiments on a large scale have been carried out for a number of years in regard to the prevention and treatment of this dis-

ease to which the natives are so liable. The heavy mortality among native laborers, especially those imported from tropical areas, first attracted the attention of the government, many years ago, and to this day the mining industry copes with difficulty with the shortage of labor created by the restrictions imposed by the government on the recruiting of natives for the mines. To obviate this difficulty towards the end of 1911 and thruout 1912 Sir Almroth Wright and his co-workers, Drs. Parry Morgan, R. W. Dodgson and L. Colebrooke, carried out investigations into pneumonia on the Rand at the invitation of the Chamber of Mines. The results of their investigations were put on record in a report, published in December, 1913.

In spite of the thoro manner in which these workers went into the matter the results of their researches were largely fruitless and they claimed "a lamentably small harvest of suggestive and interesting facts."

The vaccine employed by Wright was prepared from local strains of *pneumococcus*, grown on glucose broth. The method of investigation consisted in carrying out a very large number of opsonic and agglutination tests on the sera of pneumonia cases and of natives inoculated with varying doses of pneumococcus vaccines, and the examination of statistics in regard to the incidence of lobar pneumonia in inoculated and uninoculated groups. The results obtained by these workers were distinctly discouraging as to the value of inoculation with pneumococcus vaccine of native laborers on the Rand.

The problem was then taken up by Dr. F. G. Lister of the South African Institute for Medical Research, who has strenuously and continuously labored in this matter since 1912.

The chief difficulty experienced by Wright and his co-workers in investigating this problem was the fact that the ordinary laboratory tests, such as agglutination and opsonic estimations, were not definitely or constantly available as a guide in their experiments. They found that:

"The agglutination reaction is with the *pneumococcus* only very irregularly obtained, and that in regard to sub-cultures of the *pneumococcus* from blood and lung punctures. The vast majority of these gave no agglutination reaction; with the blood and lung punctures the vast majority of these gave no agglutination reaction with the blood of any patient."

"Moreover, in the case of these exceptional cultures which gave agglutination we obtained the reaction not only with a large number of sera from pneumonic patients, but also with a number of normal sera. By consequence we put aside the agglutination test as one that could not be utilized for the purpose of estimating the effect produced by pneumococcus vaccine."

It is clear from the published writings of Dr. Lister that his method of demonstrating the presence of agglutinins and opsonins in the blood of individuals suffering from pneumonia, or inoculated with pneumococcus vaccine, differed entirely from the generally accepted methods as carried out by Wright—the originator of opsonic work—and his co-workers. It is necessary to emphasize this point as this particular technic constitutes the keystone to the whole of Dr. Lister's otherwise careful researches.

Lister's Method of Determining Agglutination and Opsonic Estimation.—Dr. Lister states: "The technic I have employed to ascertain the agglutinating and opsonising power of sera of my inoculated animals, including man, has been essentially that originated by Sir Almroth Wright in connection with his work on the opsonic index."

This is liable to be misunderstood in view of the fact that Wright's technic is used only for the estimation of the opsonic index, and

has nothing whatever to do with the estimation of agglutination. The two, however, are combined by Lister into one examination.

Sir Almroth Wright in his opsonic technic uses *one volume* each of white blood corpuscles, sera and emulsion of microorganisms. Lister, however, departs from this method and uses proportions of serum 2, 3, 4 and even 5 times as much. The mixture thus obtained is used to prepare films which are stained and examined microscopically. This film is then used to determine both the phagocytic index and the degree of agglutination. The adoption of this technic obviously would reflect entirely different results to those obtained by Wright, and explains the entirely opposite views held by Wright and Lister.

Opsonic Index.—No one will deny that from a theoretical and academic point of view the discovery of opsonins by Wright has been of the greatest service in directing our studies and aiding us in a concrete appreciation of the process of protection against invasion by pathogenic bacteria, but it is well known that the employment of opsonic estimations as a practical diagnostic method has been largely given up by practically all workers thruout the world. The difficulty and complexity of the technic, the impossibility of avoiding numerous pitfalls, the widely different results obtained by individual workers on the same specimens, and the limited number of diseases to which this method may be applied have all combined together to make the opsonic index a matter of purely historic interest. This phenomenon, however, is first of all accepted as of practical utility by Lister, and then profoundly modified in its technic and is used by him as one of the main factors on which he found his researches. One of

the first principles in carrying out the opsonic estimation, is that there shall be no clumping in the emulsion of the bacteria employed for the test. A necessary precaution in utilizing an emulsion of bacteria is to examine the emulsion and to be satisfied that non-clumping of bacteria is present. The employment by Lister of 2, 3, 4 and 5 volumes of serum, however, stated by him to contain agglutinins, and producing—as he states—evidence of agglutination, in just those cases in which he expects a high opsonic index, largely destroys the value of his observations on the opsonic index of any particular blood. Some years ago I saw some of Dr. Lister's slides, an examination of which did not satisfy my objection. The doubts and misgivings, which I had at that time as to the value of researches built up on such a method, have now crystallized into a definite conviction that reliance on such methods can spell only failure and disappointment.

Agglutination.—The phenomenon of agglutination is an extremely variable and unreliable factor except under certain conditions. It is the observance of these very conditions which is so especially necessary before an opinion as to the presence of specific agglutinins in the blood against a given microbe can be seriously accredited. Dr. Lister's method of estimating agglutination constitutes an entirely new method, which is open to the very gravest objections. It depends on the examination of a slide, prepared by placing a small drop of his phagocytic mixture on the end of a slide, and making an ordinary smear. *He then observes the degree of clumping among the bacteria, dried, fixed and stained on this slide.* In my opinion no reliance can be placed on observations in regard to agglutination carried out by such technic. Nu-

merous factors combine together to destroy the value of such an observation.

The usually accepted methods of carrying out an agglutination test are by a microscopic method, in which the microorganism is suspended in various dilutions of serum and examined by the microscope at the end of definite intervals of time; and a similar method carried out microscopically, with larger volumes of fluid, the clumping of the microbes being sufficiently definite to be visible to the naked eye. Numerous difficulties and pitfalls may be experienced even when this test is carried out with these elaborate methods. It was by such methods that Wright and his co-workers came to express their opinion that: "The agglutination reaction is, with the *pneumococcus*, only very irregularly obtained."

Lister's method of carrying out a combined opsonic and agglutination test has been deliberately criticized as it is quite clear from a careful examination of his published writings, that his researches on this subject, and the conclusions formulated by him largely rest on the results obtained by the very questionable methods outlined above.

Strains of Pneumococcus.—During recent years advances in our knowledge of bacteriology have made the subject more complex and difficult. At one time it was thought that only one organism caused typhoid fever, only one organism caused dysentery, and so on. Since that time, however, various strains of typhoid, paratyphoid and dysentery organisms have been identified.

We have now entered on a transition stage in which it has become obvious that the dogmatic detailed classification of bacteria must be approached with caution, in

view of the increasing evidence as to the phenomena of "mutation." Some have gone so far as to state that *B. typhosus* can actually be changed into *B. coli communis*, and so on. Fortunately, altho mutation undoubtedly has its place in the life history of microbes, yet the statements in regard to radical changes of *all* the specific characteristics of a microorganism at the same time must be accepted with reserve. It is true that one or other of the characteristics exhibited by a microorganism, *e. g.*, agglutination, motility, virulence, etc., is subject to change, but that all the characteristics by which such organisms can be identified, should undergo a complete sudden mutation, must be accepted with considerable reserve. Time will prove, however, as to how far conservative bacteriologists are justified in maintaining this attitude. The proposition before us, however, is of an entirely different nature. We are asked to believe that a microbe, *pneumococcus*, is represented by a large number of named strains, eight of which have been identified as *A, B, C, D, E, F, G, X*, all other *pneumococci* not falling into any of these groups being classified as *unclassifiable*. It is claimed that each of these strains is a definite entity and can readily be distinguished one from the other; each has its own serologic characteristics whereby identification can be effected. Quite apart from other considerations, in the present state of our knowledge it is surely too much to expect that such a statement can go unchallenged. Apart from this general expression of opinion, however, on reflection we find that the identification of Lister's various strains of *pneumococcus* is based upon a technic which it is considered is totally unreliable. In other parts of the world not more than four strains have been identified, but we find no sound reason—

if identification is to rest upon such technic as has been criticized above—why an indefinite number of strains of *pneumococcus* cannot be identified. It is significant that the enthusiasts who insist on the importance of identification and naming of strains of the *pneumococcus* reserve an *unclassifiable* group for types which do not fit into their named groups. Further the number of named groups is steadily increasing. It should be remembered that the identification of these strains rests upon properties of agglutination and opsonic estimation which have been shown by Wright and others to be variable and useless for purposes of investigation into pneumonia. Certainly the recognition of different strains of microorganisms has been of distinct practical value in that attention has been directed to the importance of preparing vaccine not from individual strains, but from a number of different virulent strains.

The tendency in recent years in bacteriology has been when success has not been achieved by vaccine therapy or prophylaxis to attribute such lack of success to the presence of a new and unidentified strain of the particular microorganism commonly accepted as the sole etiologic factor in the disease. This attitude is well known in South Africa notably in regard to the numerous experiments which have been carried out in regard to the prevention of pneumonia among native laborers on the Rand. Failure to afford protection to the inoculated who have developed a fatal pneumonia has always been attributed to the presence of a strain of *pneumococcus* previously unrecognized or not included in the particular vaccine used. The hope also has always been held out that when further additional strains of the *pneumococcus* are included in the prophylactic vaccine advo-

cated and employed that success will be achieved. I must put on record most emphatically my entire disagreement with this attitude. The chief practical importance of the recognition of various strains of the same microorganism is that the practice hitherto almost universally carried out, of preparing therapeutic vaccines and sera from one individual representative of a microbe, is no longer justified. My experience, however, extending over a number of years in the preparation of various vaccines is that the problem of *variation* in bacteria is adequately and successfully solved by the preparation of vaccines and sera from a large number of unidentified virulent strains.

Practically speaking there is no limit to the number of strains which might be employed, and from a general point of view, the more the better provided each strain is a virulent specific organism exhibiting all the chief characteristics of the particular microbe and is *recently* isolated from a definite pathologic condition, exhibiting typical signs.

Preparation of Dr. Lister's Eight Group Pneumococcus Vaccine.—It is proposed now to deal with the actual technical details connected with the preparation of Lister's pneumococcus vaccine, as set out in the publications of the South African Institute for Medical Research. This vaccine is prepared by growing *pneumococci* on what may be briefly called glucose broth, instead of on solid media, because "to obtain sufficient culture for the vaccine it is not practicable to make use of solid media owing to the great quantities of it which would be required, and the relatively poor growth of *pneumococcus* in such circumstances." The serious danger, however, in such a method of preparation is clearly stated by Lister

as follows:

When growth of *pneumococcus* has occurred in this medium autolytic changes rapidly take place; after 12 hours therefore a close watch must be kept or the growth may speedily be rendered useless for the preparation of vaccine."

Dr. Lister further states: "That *pneumococci* sedimented in a 40 hour old glucose serum broth culture are devoid of antigenic properties both for rabbit and man."

It is, therefore, clear that the serious risk of deterioration of vaccine during the course of preparation is taken because it is considered that the preparation of vaccine on solid media, which is preferable in every way, cannot be practically carried out. In this I entirely disagree with Dr. Lister as there are no practical difficulties in preparing the vaccine from cultures grown on a suitable solid medium. It is merely a question of making suitable arrangements on an adequate scale. The antigenic value of vaccine depends largely on the suitability of the medium used and in regard to *pneumococcus*, blood agar is the best medium to employ. Autolytic changes must be avoided at all costs. It is not intended, however, to minimize unduly the difficulty which might arise if inoculation were generally carried out of the whole native labor population but the difficulties could certainly be overcome. The same anxiety, no doubt, has forced Dr. Lister to adopt the extremely questionable technic of concentrating the weak vaccine prepared by a growth of short duration in glucose broth, by means of a powerful centrifuge, which is nothing more or less than a cream separator. The contamination of the concentrated vaccine is evidently unavoidable as Dr. Lister admits. To quote

from his own paper:

"As might be inferred from a consideration of this method a few spores of *B. subtilis* are unfortunately present in the suspension, and they are not easily killed." One difficulty thus leads to another as this concentrated vaccine has to be treated with a powerful disinfectant for a period of anything up to 5 days in order to kill out the contaminating organisms which are unavoidably drawn into the vaccine during the process of rapid centrifugalization. What the effect of this severe prolonged treatment by means of strong disinfectant on the concentrated vaccine may be no one can say; but it is obvious that such a complication is better avoided if possible. Vaccine prepared from solid media entirely obviates all the difficulties pointed out above. Such a method allows of the preparation in a sterile manner and its accurate standardization. Moreover it is possible to keep each batch of vaccine of known composition and uniform strength, which is of vital importance. Unless the vaccine be capable of issue in a uniform strength it is necessary to find the appropriate dose for each batch of vaccine issued. Furthermore, it is noteworthy that Lister's vaccine is prepared from cultures of considerable laboratory age. Recently isolated strains are preferable for the preparation of vaccine.

Dosage of Lister's Eight Group Pneumococcus Vaccine.—At first sight the dose recommended of the vaccine under consideration for the treatment and prevention of pneumonia is nothing short of astounding, and demands the most careful examination. When a statement is made that a case of acute lobar pneumonia can safely be given a dose of seven thousand million pneumococcus vaccine, it is obviously necessary to seriously question the antigenic titre

of such a preparation, or the possibility of the illness not being due to *pneumococcus*.

I am aware that when Lister's vaccine was first employed for the treatment of cases of pneumonia that no clinical response whatever was obtained until the dose given, reached about ten thousand million. In cases of *pneumococcal* pneumonia I usually obtained definite response with doses of twenty-five million to one hundred million pneumococcus vaccine carefully standardized and prepared from blood agar. The obvious inference therefore is that the antigenic value of Lister's ten thousand million pneumococcus vaccine is roughly equivalent to from twenty-five million to one hundred million pneumococcus vaccine prepared on blood agar and carefully standardized. It is therefore clear on these grounds alone that the process of manufacture enormously reduces the antigenic value of the vaccine. Autolytic changes probably represent the chief factor in this amazing lowering of its efficiency. It will, therefore, be seen that the objections to this method of preparation of Lister's pneumococcus vaccine are very weighty, viz., the impossibility of preventing autolytic changes, the contamination of the vaccine, and its consequent prolonged treatment with a strong disinfectant, its astonishing reduction and consequent wide variation in antigenic value.

From a close study of the treatment of respiratory disease with vaccine I have for many years been satisfied that the above facts afford the only explanation available as to how such apparently large doses of vaccine can be employed in the treatment of such an acute disease, so sensitive to vaccine as lobar pneumonia.

That the success or failure of vaccine in the treatment of various diseases depends

very largely on the actual dosage employed need not be emphasized here except to say that the correct dosage of vaccine is just as important as the selection of an appropriate vaccine. *To put the matter shortly, it should clearly be understood that the dosage of pneumococcus vaccine recommended by Lister can and should only apply to Lister's vaccine.* This is probably not sufficiently well understood. Altho for many years I have known of the large doses recommended by Lister of his vaccine I have not found it necessary to, in any way, modify the doses which I myself employ of pneumococcus vaccine for the treatment of pneumococcal infections.

Statistical and General Evidence.—The fallacies liable to be associated with deductions based on statistical examination are too well known to need further emphasis here. The valuable paper by Dr. G. D. Maynard, late statistician to the Institute for Medical Research, Johannesburg, entitled *Pneumonia Inoculation Experiment No. 3* emphasizes this matter to an extraordinary degree. It will be remembered that a large experimental inoculation was carried out at the Premier Mine, the results of the inoculation showing a most marked degree of decrease in the incidence of pneumonia among inoculated natives. As Dr. Maynard states "this result was totally out of keeping with the results on the Rand but in spite of this in some quarters great stress was laid on these returns. A critical examination of these figures showed, however, that the great decrease in pneumonia among the inoculated was spurious and that the results obtained were in a large part due to the adoption of a faulty system of allotting the controls, and to other statistical fallacies. A further experimental inoculation was undertaken by the Rand

Mines the result of which was not favorable to inoculation. Dr. Maynard's paper then deals with the investigation of experimental inoculation carried out with Lister's vaccine, in which 55,900 natives were employed, half being inoculated and half serving as centrals and confirms the conclusion of a previous investigation as follows:

- (1) That the attack rate from pneumonia is apparently lessened by inoculation, a small positive correlation being obtained.
- (2) That there is little or no evidence that the case mortality is favorably affected by inoculation.

He further states that he is unable to give any satisfactory reply as to whether the vaccine prepared by Lister from identified strain offers any advantage over the vaccine previously prepared by Wright from non-identified strains. On the face of it these conclusions are paradoxical. To claim protection against a particular disease, and at the same time to admit that the mortality among the inoculated is not favorably affected, is entirely at variance with the experience gained of preventive inoculation in other diseases. It has been the universal experience that among these individuals previously inoculated against typhoid and paratyphoid fevers, who in spite of inoculation developed the disease, *the mortality is considerably reduced*, the disease tending to be mild and free from complications. It is stated however, that after prophylactic inoculation against pneumonia, altho the attack rate is lessened that the case mortality is not affected. Under these circumstances, it is clear that the evidence in favor of inoculation with Lister's pneumococcus vaccine must be trifling. Without going into details of the statistics dealt with by Dr. Lister in his more recent publication, November, 1917, the concluding para-

graphs of this paper are significant. Dr. Lister states: "I have not lost sight of the fact that a reduction of the mortality from pneumonia has occurred of late among the whole population of native mine laborers in the Transvaal. This is especially obvious during the present year and critics have lost no time in expressing the opinion that this fact indicates that the reduction recorded on the experimental mines is merely part of a general decrease due to natural causes." * * * "This bare expression of opinion, however, constitutes a very glaring instance of *suppressio veri*. The fact that while there is a total of about two hundred thousand native laborers nearly three hundred thousand doses of pneumococcal vaccine have been used by this institute for their prophylactic inoculation during the past twenty-two months is ignored. Until the statement that A, B and C pneumonia has been completely abolished, under experimental conditions, is refuted, all such speculative criticism is futile and scarcely deserves serious consideration."

As each boy received three inoculations it would appear that some fifty thousand boys were inoculated during the year. But it should be remembered that the vast majority of native workers only work for short periods, on an average about six months, on the mines, so that the actual proportion of inoculated boys to the total amount of population must constitute a small proportion, about 10%. It is, therefore, clear that the incidence of pneumonia has decreased on all mines, possibly owing to the improved sanitation, better feeding, and more careful selection of recruits—the susceptible tropicals being excluded—and that inoculation has been applied up to the present to only a small proportion of native labor engaged on the mines. But there is a

further factor to be considered in regard to the general decline in the incidence of pneumonia in the mines. I am aware of an occasion when twelve boys, picked out for demonstration purposes as cases of lobar pneumonia, were found on investigation, in every case, to be cases of tuberculosis. The difficulty of differential diagnosis under the conditions of pressure of work obtaining on many of the mines, the wide incidence of silicosis with or without pulmonary tuberculosis among the natives on the mines, and the fact that as mentioned by Dr. Lister "Tuberculosis is unfortunately increasing rather than decreasing among the native mine laborers" all raise the very important query as to how far statistics based on rapid diagnosis, which is liable to be bacteriologically incorrect, can be seriously considered? The fact remains that while the incidence of pneumonia has declined the incidence of tuberculosis has increased. In addition to this evidence, however, it will be remembered that preventive inoculation against pneumonia was largely carried out among the native labor contingent which went overseas to Flanders. Investigations, however, have proved that the incidence of pneumonia among the inoculated and uninoculated members of this contingent showed no advantage in favor of inoculation with Lister's pneumococcus vaccine. Furthermore, it is known that experiments carried out in areas other than the Rand on a fairly large scale have given absolutely negative results. It will, therefore, be seen that quite apart from the very serious objections which have been raised in regard to a selection of strains and the actual method of preparation of this vaccine, there are many disquieting factors which call into question the validity of the claims which have been publicly put forward as

to the success of prophylactic inoculation against pneumonia on the Rand. Furthermore, the evidence which is forthcoming in regard to the incidence of pneumonia among inoculated natives during the prevailing epidemic is significant. I understand no advantage in favor of inoculation has been demonstrated, a particularly heavy mortality occurring at Kimberley where inoculation had been largely practiced, and on the Rand no marked difference was apparent between inoculated and uninoculated groups. These results are in accordance with bacteriologic findings as pneumococcus alone has been a comparatively unimportant factor in the heavy mortality during the prevailing epidemic. In conclusion it is necessary to state that the failure in the present method of prophylactic inoculation against pneumonia is due not to the presence of an unidentified strain or strains of *pneumococcus* but to the fact that the etiologic importance of other microorganisms especially *M. catarrhalis*, *streptococcus*, *streptococcus mucosus capsulatus*, *B. influenzae*, *B. Friedlander*, *B. septus* and *staphylococcus* has not been appreciated. The employment of a highly multivalent vaccine prepared from numerous recently isolated virulent strains of the above microorganisms enormously reduces the incidence of pneumonia and other respiratory diseases (excluding tuberculosis) and markedly reduces the mortality from these diseases. It is also significant that the individuals inoculated prophylactically with this mixed vaccine shortly before the prevailing influenza epidemic appeared in South Africa have escaped infection or only suffered from mild attacks free from complications.

In conclusion I should like to place on record my appreciation of the valued assistance and loyal support in these prolonged

investigations of Mr. F. Russell, chief laboratory assistant, formerly of the Lister Institute, Mr. D. J. Russell, and Mr. J. A. Colverd, laboratory assistants, Clinical Research Laboratories, Johannesburg.

SUMMARY.

1. Anaphylactic and anti-anaphylactic phenomena play a very important part and are valuable guides in vaccine therapy, especially in diseases of the respiratory tract. Serologic tests are not satisfactory guides or reliable indicators of established immunity, or of practical service in the carrying out of treatment with vaccines or sera.

2. The very important part played by symbiosis in bacterial infections of the respiratory organs cannot be too strongly emphasized. The clinical results of therapeutic and prophylactic inoculation with mixed vaccines lend strong support to these views.

3. A constitutional weakness in the elaborate defensive organization against invasion by the causative microorganisms of respiratory diseases indicates a *pneumocatarrhal diathesis*. This constant diminished resistance can be successfully reversed by specific immunization with a highly multivalent mixed vaccine prepared from numerous recently isolated virulent strains of those pathogenic bacteria commonly conveyed in the air breathed. Non-specific treatment is of no avail.

4. Roughly less than 25% of cases diagnosed as pneumonia in general practice are due primarily to infection with *pneumococcus*, the proportion varying from time to time. In all cases of pneumonia, however, the condition is sooner or later a mixed infection in which any of the causative bacteria of respiratory diseases may be present. *M. catarrhalis* and *streptococcus* are the commonest in South Africa. *Pneumococcus*, *B. Friedlander*, *B. influenzae*, *streptococcus mucosus capsulatus*, *staphylococcus*, *B. septus* are also regarded as important organisms in the etiology of pneumonia.

5. Whatever theoretical objections may be raised to this statement, the clinical results in practice, both of therapeutic and prophylactic inoculation for pneumonia, with a mixed vaccine afford overwhelming evi-

dence as to the soundness of these views. The mixed vaccine used is prepared from 150 virulent recently isolated strains of *M. catarrhalis*, *streptococcus*, *pneumococcus*, *streptococcus mucosus capsulatus*, *B. Friedlander*, *B. influenzae*, *B. septus* and *staphylococcus*. Each organism is represented in a curative therapeutic dose, the actual dose used being somewhat less than the amount required when each organism is used separately.

6. These views have been strongly confirmed and widely tested on a very large scale in South Africa during the prevailing epidemic of Spanish influenza, the very heavy mortality being due almost entirely to pneumonia. The mortality from pneumonia has been greatly reduced by therapeutic inoculation with mixed vaccines. Similarly prophylactic inoculation with larger doses of this mixed vaccine has reduced the incidence of influenza and prevented pneumonia, fatalities in individuals inoculated twice being rare.

7. The failure of preventive inoculation against pneumonia with various pneumococcus vaccines is due to a false or incomplete conception of the etiology of the disease broadly diagnosed as pneumonia. This want of success is not due to faulty dosage of pneumococcus vaccine, or the absence of unidentified strains of *pneumococcus*. If pneumococcus vaccine was of definite value proof would have been forthcoming long since in view of the numerous experiments which have been carried out on a large scale.

8. This failure is due to the fact that the etiologic significance of other microorganisms has not been recognized. The organisms in addition to *pneumococcus* are *M. catarrhalis*, *streptococcus*, *streptococcus mucosus capsulatus*, *B. Friedlander*, *staphylococcus*, *B. influenzae* and *B. septus*. That the incomplete and inaccurate views in regard to the etiology of pneumonia have survived so long is due to the modern development of water-tight compartments in medicine. The clinician is not a bacteriologist. The bacteriologist is not a clinician.

9. Prophylactic inoculation with mixed vaccine prepared from the organisms enumerated will enormously reduce the incidence of pneumonia and other respiratory diseases (excluding tuberculosis) and large-

ly abolish the mortality from these diseases. The actual composition of the vaccine and proportion of each organism represented in the mixed vaccine used should be decided from a close and extensive study of the bacteriologic flora found in respiratory diseases.

WHY NOT BIRTH CONTROL CLINICS IN AMERICA?

BY

MARGARET SANGER,
New York City.

The absurd cruelty of permitting thousands of women each year to go thru abortions to prevent the aggravation of diseases, for which they are under treatment, assuredly cannot be much longer ignored by the medical profession. Responsibility for the inestimable damage done by the practice of permitting patients suffering from certain ailments to become pregnant, because of their ignorance of contraceptives, when the physician knows that if pregnancy goes to its full term it will hasten the disease and lead to the patient's death, must in all fairness be laid at his door.

What these diseases are and what dangers are involved in pregnancy are known to every practitioner of standing. Specialists have not been negligent in pointing out the situation. Eager to enhance or protect their reputations in the profession, they continually call out to each other: "Don't let the patient bear a child—don't let pregnancy continue."

The warning has been sounded most often, perhaps, in the cases of tubercular women. "In view of the fact that the tubercular process becomes exacerbated either during pregnancy or after child birth, most authorities recommend that abortion be induced as a matter of routine in all tuber-

cular women," says Dr. J. Whitridge Williams, obstetrician-in-chief to the Johns Hopkins Hospital, in his treatise on "Obstetrics." Dr. Thomas Watts Eden, obstetrician and gynecologist to Charing Cross Hospital and member of the staffs of other notable British hospitals, extends but does not complete the list in this paragraph on page 652 of his Practical Obstetrics. "Certain of the conditions enumerated form absolute indications for the induction to abortions," he says. "These are nephritis, uncompensated valvular lesions of the heart, advanced tuberculosis, insanity, irremediable malignant tumors, hydatidiform mole, uncontrollable uterine hemorrhage, and acute hydramnios."

We know that abortion, when performed by skilled hands, under right conditions, brings almost no danger to the life of the patient, and we also know that particular diseases can be more easily combated after such an abortion than during a pregnancy allowed to come to full term. But why not adopt the easier, safer, less repulsive course and prevent conception altogether? Why put these thousands of women who each year undergo such abortions to the pain they entail and in whatever danger attends them?

Why continue to send home women to whom pregnancy is a grave danger with the futile advice: "Now don't get this way again!" They *are* sent back to husbands who have generations of passion and passion's claim to outlet. They *are* sent back without being given information as to how to prevent the dangerous pregnancy and are expected, presumably, to depend for their safety upon the husband's continence. Back comes the patient again in a few months to be aborted and told not to do it again.

Does any physician believe that the pic-

ture is overdrawn? I have known of many such cases. A recent one that came under my observation was that of a woman who suffered from a disease of the kidneys. Five times she was taken to a maternity hospital in an ambulance after falling in offices or in the street. One of the foremost gynecologists of America sent her out three times without giving her information as to the contraceptive means which would have prevented a repetition of this experience.

Why does this situation exist? One does not question the intent or the high purposes of these physicians, or that they are working for the improvement of the race. But here is a situation that is absurd—hideously absurd. What is the matter?

Several factors contribute to this state of affairs. First, the subject of contraception has been kept in the dark, even in medical colleges and in hospitals. Abortion has been openly discussed as a necessity under certain conditions, but the subject of contraception, as any physician will admit, has only recently been brought to the front.

It has been permitted to lie latent; it has escaped specialized attention in the laboratories and the research departments. Thus there has been no professional stamp of approval by great bodies of experimenters.

The result is that the average physician has felt that contraceptive methods are not yet established as certainties and has, for that reason, refused to direct their use.

Specialists are so busy with their own particular subjects and general practitioners are so taken up with their daily routine that they cannot give to the problem of contraception the attention it must have. Consultation rooms in charge of reputable physicians who have specialized in contraception, assisted by registered nurses—in a word, clinics designed for this specialty—

would meet this crying need. Such clinics should deal with each woman individually, taking into account her particular disease, her temperament, her mentality and her condition, both physical and economic. Its sole function should be to prevent pregnancy. In the accomplishment of this, a higher standard of hygiene is attained. The result would be not only the removal of a burden from the physician who sends her to the clinic, but an improvement in the woman's general condition that would reflect itself in a number of ways to the benefit of her family.

All this for the diseased woman. But every argument that can be made for preventive medicine can be made for birth control clinics for the use of the woman who has not yet lost her health. Sound and vigorous at the time of her marriage, she could remain so if given advice as to by what means she could space her children and limit their number. When she is not given such information, she is plunged blindly into married life and a few years is likely to find her with a large family, herself diseased, damaged, an unfit breeder of the unfit, and still ignorant. What are the fruits of this woeful ignorance in which women have been kept? First, a tremendous infant mortality—hundreds of thousands of them dying annually of diseases which flourish in poverty and neglect. Next, the rapid increase of the feeble-minded, of criminal types and of the pathetic victims of toil in the child labor factories. Another result is the familiar overcrowding of tenements, the forcing of the children into the street, the ensuing prostitution, alcoholism and almost universal physical and moral unfitness.

These abhorrent conditions point to a blunder upon the part of those to whom we entrusted the care of the health of the in-

dividual, the family and the race. The medical profession, neglecting the principle involved in preventive medicine, has permitted these conditions to come about. If they were unavoidable, we would have to bear with them, but they are not unavoidable, as shown by facts and figures from other countries where contraceptive information is available.

In Holland, for instance, where the information concerning contraceptives has been accessible to the people, thru clinics and pamphlets since 1881, the general death rate and the infant mortality rate have fallen until they are the lowest in Europe. Amsterdam and The Hague have the lowest infant mortality rates of any cities in the world.

It is good to know that the first of the birth control clinics of Holland followed shortly after a thoro and enthusiastic discussion of the subject at an international medical congress in Amsterdam in 1878. The first birth control clinic in the world was opened in 1881 by Dr. Aletta Jacobs in Amsterdam. So great were the results obtained that there has been a gradual increase in the number of clinics, until to-day there are fifty-two in operation in that country of some 6,000,000 people. Physicians have found that nurses trained for this work by specialists are highly competent to take care of it and it is the almost invariable rule that birth control clinics are conducted by such nurses. Dr. J. Rutgers of The Hague, secretary of the Neo-Malthusian League, is the specialist who trains and instructs the nurses. The general results of the work are best judged by the tables shown on page 167, taken from The Annual Summary of Marriages, Births and Deaths in England, Wales, etc., for 1912:

In conclusion, I am going to make a

statement which may at first seem exaggerated, but which is nevertheless carefully considered. The effort toward racial progress that is being made today by the

They will continue to mark time until they get at the source of these destructive conditions and apply a fundamental remedy. That remedy is birth control.

Amsterdam (Malthusian [Birth Control] League started 1881; Dr. Aletta Jacobs gave advice to poor women, 1885.)

	1881-85	1906-10	1912
Birth rate	37.1	24.7	23.3 per 1,000 of population
Death rate	25.1	13.1	11.2 per 1,000 of population
Infantile Mortality:			
Deaths in first year	203	90	64 per thousand living births

The Hague (now headquarters of the Neo-Malthusian [Birth Control] League)

	1881-85	1906-10	1912
Birth rate	38.7	27.5	23.6 per 1,000 of population
Death rate	23.3	13.2	10.9 per 1,000 of population
Infantile Mortality:			
Deaths in first year	214	99	66 per thousand living births

These figures are the lowest in the whole list of death rates and infantile mortalities in the summary of births and deaths in cities in this report.

Rotterdam.

	1881-85	1906-10	1912
Birth rate	37.4	32.0	29.0 per 1,000 of population
Death rate	24.2	13.4	11.3 per 1,000 of population
Infantile Mortality:			
Deaths in first year	209	105	79 per thousand living births

Fertility and Illegitimacy Rates:

	1880-2	1890-2	1900-2
Legitimate fertility	306.4	296.5	252.7 } Legitimate birth per 1,000 married
			women aged 15 to 45
Illegitimate fertility	16.1	16.3	11.3 } Illegitimate births per 1,000 unmar-
			ried women, aged 15 to 45

The Hague.

	1880-2	1890-2	1900-2
Legitimate fertility	346.5	303.9	255.0
Illegitimate fertility	13.4	13.6	7.7

Rotterdam.

	1880-2	1890-2	1900-2
Legitimate fertility	331.4	312.0	299.0
Illegitimate fertility	17.4	16.5	13.1

medical profession, by social workers, by the various charitable and philanthropic organizations and by state institutions for the physically and mentally unfit is practically wasted. All these forces are in a very emphatic sense marking time. They will continue to mark time until the medical profession recognizes the fact that the ever-increasing tide of the unfit is overwhelming all that these agencies are doing for society.

Mineral Oil.—If mineral oil disagrees with your patient, give him olive oil; but give enough of it, so that some goes thru undigested.—*Med. Council.*

Enthusiasm.—

"Now I get me up to work,
I pray the Lord I may not shirk,
If I should die before the night,
I pray the Lord my work's all right."

—*Drug Topics.*



LONDON LETTER

(From our Regular Correspondent.)

THE MEDICAL PARLIAMENTARY COMMITTEE.

The outstanding feature in English medical politics during the last month has been the institution of the Medical Parliamentary Committee. This body came into a stormy existence at a public meeting of the medical profession held late last year on the eve of the General Election. At the meeting a group of men representing very diverse medical positions, institutions and movements were chosen with the general mission to improve the chances of medical men who desired to enter Imperial Parliament. Before the Medical Parliamentary Committee could get properly to work the General Election arrived, the constituencies had secured their candidates, and all that remained for the committee to do was to supply speakers for the platform of such adopted candidates as were medical men. There was no chance of nominating any new medical men. The committee rose to its chances, and supplied forceful speakers to medical platforms, entirely regardless of party politics, for the Medical Parliamentary Committee knew no party politics, but only one party—the party of improved health for the nation. It was recognized by all who fathered the movement that a medical man had a right to his political views, and that those views, and not his medical ideals, could obtain him a seat in Parliament—for no constituency will elect a "member for medicine"; but what the committee desired to impress upon the public, as well as the medical profession, was that in all social legislation the public health aspect will be the one at which medical men must look—the health of the people is their first charge.

The General Election resulted in the election of seventeen medical members of Parliament, of whom five or six will not take their seats, being committed to the principles of separation in Ireland. Of the others the best known are Dr. Christopher Addison, the President of the Local Government Board, Sir Auckland Geddes also a cabinet minister, Sir Watson Cheyne, the former surgeon, representing the University of Edinburgh, Sir Robert Woods, the laryngologist, representing the same seat of learning, and Sir William Whitla, the most learned British pharmacologist, representing the Queen's University of Belfast. The Medical Parliamentary Committee then resolved to get into close touch with the medical members of Parliament, themselves formed into a sort of informal committee in the House of Commons. In this way it was thought that a group of medical men, within the legis-

lature, who had arrived there for other than professional reasons, could be instructed by a group of medical men outside the house selected entirely for professional reasons; and to make the cooperation outlined above a real one, became the immediate objective of the Medical Parliamentary Committee. The policy was not long to remain unchallenged. First, the British Medical Association, possessing a committee working to secure the election of medical men to Parliament, considered the formation of the Medical Parliamentary Committee an encroachment upon the activities of the Association, and withdrew all support. Secondly, a group of medical men who wish to see the medical profession transformed into a trade union, ready to strike for higher wages if its terms cannot otherwise be obtained from the public, resisted the desire of the Medical Parliamentary Committee to become a central body of the profession, because it had very different ideals. At public meetings, the committee did not gain any enthusiastic support; *The British Medical Journal* ignored it, and *The Lancet* blessed it, but not over-enthusiastically.

But when Parliament opened the Medical Parliamentary Committee had the not wholly original idea of giving a dinner to explain itself more fully. So the committee invited all the medical members of Parliament to meet certain leading medical men at dinner, and Dr. Christopher Addison attended the dinner as his first social function after election to the Local Government Board. The dinner was a great success, the speakers were good and the fare admirable, and Dr. Christopher Addison told his hosts his policy with regard to the Ministry of Health, the bill for the erection of which is in his charge. Speeches were also made by Sir Bertrand Dawson, Dr. Squire Sprigge, Sir Watson Cheyne, Sir James Galloway and others all insisting upon the necessity of some unanimity of view and design in medical politics, whereby legislation in Parliament, when it touched upon the health of the people, should be inspired by real medical knowledge obtained from the outside. The Medical Parliamentary Committee is a young thing; it has hardly escaped the risks of infant mortality; but it is now shaping well. Even if, in my next letter, I should have to chronicle its early death it would not have lived in vain, for it has given many medical men a higher view of what is, or should be, meant by medical unanimity. It does not imply the standing together of a professional class to exact the highest payment from the public; it does imply the union of the best medical thoughts for the public good, and thereafter proper payment from the public for work done.

THE SUPPLY OF NURSES THE PUBLIC NEED.

In this country, as in America, considerable difficulty exists as to the standing, training, duties and responsibilities of the sick nurse. On the one hand she is eulogized as *par excellence* an example of self-denial, altruism and

technical skill, and on the other hand she is found wanting as a hybrid between the rule-of-thumb routine which prevailed in nursing five-and-twenty years ago and the high developments of clinical medicine which have been the feature of our Science since that date. If the glowing picture is the right one, her position is obviously wrong. If the more unfavorable estimate comes nearer the truth, the methods employed in training nurses must be sadly to seek. The trained nurse has become a necessity in our present civilization, yet her cost makes her services a luxury that only those in good circumstances can enjoy. Dr. John Dill Robertson, Commissioner for the Department of Health in Chicago, issued in a recent bulletin from the Chicago School of Sanitary Instruction, a remarkable little paper upon the position of nursing in the United States. While insisting on the truth that in sickness a nurse is a material necessity, he indicates that her training and her salary should be better directed towards turning out an article that meets the practical wants of the community, and every word which he says has as much bearing in this country as in America. Dr. Robertson finds that the nurse who has spent three years in a training school, who has specialized in surgery, obstetrics or public health by taking out a special course, cannot on the one hand be expected to demand less than a sum equivalent in British money to a pound a day—which at once places her services out of the reach of two-thirds of the British community—and yet is not the article that is required in bulk. His recommendation is that a new order of what he calls "Practical Nurses" should be instituted; that the standard of training for these nurses should be lower than that to which the trained nurse usually aspires; that the time of training should be six months and intensive in character; and that knowledge of practical housekeeping and domestic science should be considered an important requirement. He considers that this order of "Practical Nurses" ought to be well paid at half the price now paid to trained nurses; but in the Bulletin, from which we are quoting, we do not see any suggestion from what social order these women are to be drawn or what particular inducement there would be for them to enter domestic service of a hard nature at a moment when domestic service of all kinds is regarded with dislike.

In this country we cannot conceive of an inferior order of nurses obtaining any *locus standi*. The candidates for the service would probably be few, while the public would never be able to distinguish between the lower standard nurse and her superiorly trained sister. There is no compulsory registration for nurses in Great Britain, so that it would not, at any rate at the present moment, be available to say that the public would easily learn the difference because one class is registered and the other uncertified. The consequence is that the introduction of an inferior order into the profession of nursing would not elevate that order, but would degrade in popular eyes the superior order. In this country we are committed to

the higher standard, but it is certainly true that the education of our nurses might be vastly more economical, take a much shorter time, and be better directed to practical issues. The length of time necessary for the training of a nurse, according to the English estimate, is three years. This is regarded as the minimum required before she should be allowed to receive a certificate as having learned her business in connection with a hospital or institution of the necessary opportunities for instruction, but as a matter of fact the hospital training of nurses does not occupy three years, for at least one year is spent as probationer in largely doing a course of domestic work, scrubbing of floors, cleaning of bathrooms and so on, should not be performed by a nurse, and if this drudgery were gotten rid of there is no reason to suppose that the education of the nurse could not be accomplished in at least two-thirds of the time, with better scientific results. During that two years the training should be directed in certain main ways. First, the nurse should receive instruction, up to the necessary point, in anatomy and physiology, medicine and surgery, and any particular specialty she might choose to adopt; and secondly she should obtain clinical instruction of the kind that would enable her to see the danger signals when manifest in her charges, for, to obtain a trained eye for sickness is as important to a nurse as to carry out implicitly the doctor's orders.

The cost of employing trained nurses could probably be lowered not only by abbreviating their period of probation and training but by improving the organizations thru which they are distributed to the public; but as a matter of fact the institution of paying hospitals will probably be the step necessarily precedent to obtaining for the less wealthy members of the public adequate nursing during sickness. The poor obtain trained nursing at the hospitals. The rich buy it for a high figure and enjoy it at home. The middle class either goes without it thru lack of means or pays for it with money which in too many cases is sadly required for the after period of convalescence. It will be seen that the whole profession of nursing is in a muddled plight in England and Scotland; in Ireland it is worse. Registration would certainly prevent impersonation, and so far be to the good; but it would probably increase the cost of service which is already prohibitive. A national scheme of district nursing and a wide provision of paying hospitals will probably supply the way out, but only after the lapse of much time.

Just Keep On Keepin' On.

If the day looks kinder gloomy
 An' your chances kinder slim,
 If the situation's puzzlin'
 An' the prospect's awful grim,
 An' perplexities keep pressin'
 Till all hope is nearly gone,
 Jus' bristle up an' grit your teeth,
 An' keep on keepin' on. —Ex.

Physical Therapy

Under the Editorial Direction of Albert C. Geyser, M. D., New York.

REACTION OF DEGENERATION.

Much confusion exists as to the meaning of ascending and descending degeneration. In the spring time, when the bushes are just beginning to sprout, if a twig is broken off, it is separated from its trophic center, the root of the plant. If such a twig is left to itself the drying up begins at the point of separation, the distal end remains unaffected to the last. The life of the distal end can be materially prolonged by placing the broken end in water. For a certain length of time the injured end will perform the function of the root and absorb nutrition from the water. In some cases, roots will develop and a completely independent plant is thus created; this is akin to regeneration. When the motor cells of the motor cortical zone of the cerebrum are injured as in apoplexy, nutrition is interfered with and the nerve fibers coming from these cells degenerate from the point of injury. These nerve fibers make up the pyramidal tract, hence in central motor cell injury we have a descending degeneration of the pyramidal tract. The sensory nerve tract conducts its impulses upward thru the spinal cord, hence a peripheral injury causes loss of sensation and produces an ascending degeneration in the nerve fibers.

When a nerve is tested immediately after injury there will be a partial or incomplete R. D.¹ This may either be qualitative or quantitative. A little later, when the end organs have suffered from nutritional changes, there will be complete loss to the faradic and partial or complete loss to the galvanic current. If there is loss to both currents then complete R. D. is established. After a few days or weeks regeneration may take place, either thru the recovery of the trophic cell or by the establishment of collateral nerve supply. Under such circumstances, if the nerve is tested carefully every two to four weeks, with a condensor ap-

paratus, a reasonably correct prognosis may be given. Returning R. D. after complete absence of all reaction always means that the axis cylinder is again in contact with the trophic cell. The future prognosis depends upon the recovery of the end organs and the muscle fibers.

In chronic spinal progressive muscular atrophy the lesion is located in the motor nerve nuclei which are found in the medulla oblongata. The ganglion cells, which are the most important components of these nuclei, gradually degenerate, lose their processes and finally disappear entirely. The lesion of this disease, being in the trophic cells, there naturally follows a partial, and later a complete R. D. Owing to the involvement of so many of the smaller muscles of the face, the electrical reactions are demonstrated with some difficulty until late in the course of the disease.

In amyotrophic lateral sclerosis the lesion is spread over a large area, complete degeneration of the pyramidal tracts having been observed. The reason that R. D. is present is not due to central fiber involvement but to the fact that the cells in the anterior horn have also become affected. Many cells, otherwise normal in appearance, have no dendric processes or only imperfect ones; some of the cells are tumified, nutrition and conduction are interfered with, hence, the peripheral symptoms of a central paralysis.

In cases of neuritis of all kinds, while the trophic cell in the cord may be normal, the axis cylinder or the conducting portion of the neuron is affected. This, of necessity, modifies the electric conduction, hence R. D. As a rule the regeneration of nerve fiber shows a progressive improvement in the electrical tests which distinguishes it at once from the lateral sclerosis type of cases.

In the rheumatic and toxic paralyses the reaction of degenerations is present because the end organs of the motor neuron are incapacitated as a result of the toxemia. When the end plates of a motor neuron fail to perform their function, the same electrical manifestations are present as tho the lesion was located in any other portion of the motor neuron.

The very fact however that R. D. is present in a given paralysis, at once estab-

¹ Reaction of Degeneration.

lishes the fact that the paralysis is not of central origin. It further speaks against myopathic paralysis as well as against all functional or hysterical paralysis or shamming. We must distinguish between muscles which suffer as a result of their separation from their respective trophic centers and muscles which suffer degenerative changes from non-use, toxines, atrophies and hypertrophies. As long as the peripheral motor neuron system is not involved, so long will there be no R. D. tho the muscle may have undergone serious tissue changes. This statement reversed would mean that no matter how serious the muscle changes may be, so long as there is no R. D. it is a myopathic disease and not a neuron affection. It establishes at least a differential diagnosis, in an apparently similar condition between a disease of the muscle itself and a neuron disease.

Of course it must ever be borne in mind that a person having all the evidence of hysteria may have at the same time a central or even a peripheral neuron lesion, the one does not preclude the other. Complete absence of R. D. in a paralysis positively excludes lesions in the lower neuron, but does not exclude severe lesions in the cerebrum. Again the presence of R. D. points conclusively to a lesion somewhere in the lower motor neuron, but does not always exclude disease of the central or upper neuron. There are other types of paralysis with marked atrophy where no lesion exists either in the central or the peripheral neuron. In such paralysis R. D. cannot be present for obvious reasons. It is just in such cases that the electrical reaction throws much light upon the diagnosis.

Some of these diseases are:

(A) Primary myopathies or muscular affections, not due to any disturbance of the neuron system.

1. *Pseudo hypertrophic paralysis.* The hypertrophy is caused by the overgrowth of fibrous and fatty connective tissue. The muscles most commonly affected are the calf muscles, but it may occur in the upper limbs such as the biceps and the deltoid muscles. R. D. should of course not be present. When it is present, it should arouse the suspicion that the atrophy may be both myopathic and myelopathic.

2. *Progressive muscular dystrophy.* The lesions are in both cases purely muscular.

The atrophy in this disease may be so intense that no muscular fibers remain. Some investigators claimed to have demonstrated lesions in the gray matter of the cord. Since however we have no R. D. present, we are safe in assuming that the lesions of progressive muscular atrophy are primarily muscular. An injury to one portion of a certain system is eventually an injury to the immediately adjoining one. It is easy to understand that when a muscle has for a long time failed to functionate, that a certain amount of stimulus has been withdrawn from the neuron system which supplied these muscles. It is not difficult to account for a certain amount of nerve degeneration simply from non-use.

When a muscle atrophy follows trauma, contusions, wounds or fractures, we get a hypo-excitability to both currents, but R. D. is never present unless the nerve is also involved. In the myalgias, lumbago and torticollis, R. D. is never present unless there is also a toxic neuritis.

(B) R. D. is always present in affections of the peripheral nerves in any portion from the motor cells in the cord to the muscles which they supply. The reaction of degeneration is due to the destructive alteration of the axis cylinder or some of the small branches of the main nerve in all cases of neuritis and polyneuritis caused either by exposure to cold or some toxic or infectious agent. All varieties are characterized by R. D. more or less complete.

In cases of toxic or infectious neuritis followed by peripheral paralysis our first attention was drawn to the pain without the paralysis. Later the paralysis developed. If we test such a paralysis the R. D. is not apparent until from six to eight days after the commencement of the paralysis. If this late paralysis should happen to be of central origin, we would never get the R. D. but instead a quantitative or qualitative modification for either one or both currents.

(C) 1. Lesions of the nerve centers of which there are two divisions. *Lesions of the white substance of the cord.* Let us recall that the white substance of the cord is principally composed of conducting fibers, either main or collateral branches passing up and down in the cord to cells lying at various levels. These white columns are the site of degenerative changes in locomotor ataxia. It is not until all of the

fibers have been destroyed that we get R. D. Hence, in any given case of locomotor ataxia, so long as R. D. is absent, so long is the prognosis for the arrest of the disease good, more or less complete recovery is not impossible. These are the cases that respond to combined treatment of diathermia and muscle re-education. It is easy to see why this should be so. Heat applied to a degenerative process in the cord stays that process, while re-education develops the collateral nerve fibers.

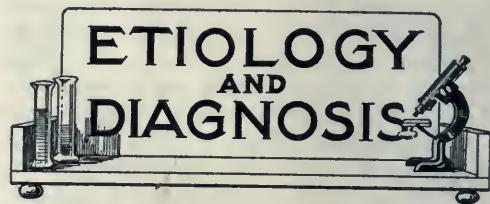
2. *All the lesions of the cord substance itself*, such as poliomyelitis and progressive muscular atrophy as previously mentioned. The lesions here are due to some change in the gray matter of the anterior horn caused by fibrosis, sclerosis, trauma, acute inflammation or hemorrhage. In these lesions the R. D. is present early, before any atrophy is visible, because the conducting mechanism is interfered with, as a matter of fact no impulses are generated in the trophic centers to be conducted.

Altho in these lesions the R. D. is present early and usually of a marked degree, the prognosis is not bad if treatment is begun before too much destruction in the cord has taken place and before the end organs have been completely destroyed from two reasons, first, because their trophic center has been destroyed and secondly, because from non-use a natural atrophy and a possible absorption may have taken place.

In acute diffuse myelitis there may and there may not be any destruction of the trophic centers; there may or may not even be destruction of any of the white substance, so that impulse generation and conduction may be interfered with very slightly. If such is the case, then there will be perhaps only some loss to faradic excitability, there may even be hyper or hypo-excitability to the galvanic current. This would constitute a qualitative or quantitative change and the prognosis would be correspondingly good. On the other hand, if in a case of diffuse myelitis, the normal galvanic formula is reversed and complete R. D. is present, the prognosis is equally grave.

A paralysis which is due to cerebral hemorrhage, a simple irritative lesion will show increased excitability to both the faradic and the galvanic current immediately after the onset. This hyper-excitability is most marked during the second or third week. In

older cases when more or less absorption of the localized hemorrhage has taken place and the irritability reduced, we find hypo-excitability to both currents. Since this lesion is of the central neuron, no impulses reach the peripheral motor, hence the paralysis. Because the peripheral neuron or its trophic cell is in no way disturbed, there can be no R. D.



Diagnostic Value of Dulness in Traumatic Intraabdominal Extravasations.—Costantini and Vigot (*Paris Médical*, November 2, 1918) lay great stress on the importance of recognizing a fluid extravasation in penetrating wounds of the abdomen as well as in abdominal contusions complicated with visceral or vascular injury, such an extravasation indicating immediate operation. Simple perforation of the alimentary tract seldom results in marked extravasation, but let the smallest artery, e. g., some small omental vessel, be injured, and a litre of blood will easily escape into the abdominal cavity. Of the three recognized signs of visceral injury, e. g., rigidity, prehepatic sonority, and iliac dulness, the first is unreliable because it is lacking where there has been a simple hemorrhage without visceral injury and present where there is merely a wound of the diaphragm; the second is simply a sign of meteorism, but the third is a definitely valuable indication. The migration of blood toward the right iliac fossa, however, as mentioned in the usual textbooks, is an erroneous deduction. As a matter of fact, blood extravasated in the abdomen tends generally to sag into Douglas' cul-de-sac. Unless the amount exceeds 200 grams it does not rise above the brim of the pelvis, and cannot be detected clinically. Where it does rise higher, it will usually yield dulness in the right iliac region rather than in the left, for the latter is almost always occupied by the sigmoid loop, which is not displaced by the fluid and continues to yield a tympanitic note to percussion. Less frequently, the cecum is inserted low, while the mesosigmoid is very short and the extravasated fluid passes above it; left-sided dulness is then found, with marked tympany at the right. Where the extravasation is relatively slight, rendering comparison of the two sides difficult, both heavy and light percussion should be tried; if a difference between the two sides can be definitely established, an extravasation is present and operation is indicated. In patients who have been lying on the side, the cul-de-sac has not been the most dependent portion of the abdomen, and dulness in the iliac fossae

will be sought in vain. On the other hand, an area of dulness will easily be found on the side of the abdomen upon which the patient has been lying. If now the patient is turned on the back, the dulness will be observed gradually to descend and occupy the iliac fossa of the same side; under such conditions celiotomy is clearly indicated.

Etiology of Pruritus Ani.—Murray (*Journal A. M. A.*, Nov. 2, 1918) states that true pruritus ani is due to infection of the skin with the *streptococcus faecalis*, and that in cases of pruritus this organism cannot only be cultivated as the preponderant one from the affected region, but also the patient's blood shows a marked reduction in its content of opsonins toward the organism. The same etiology holds for pruritus vulvæ and scroti, as well as for the anal variety. Further support of this conception of the etiology of the pruritus is found in the fact that there is no relationship between the occurrence of pruritus and the various rectal pathologic conditions. The discovery of the etiologic factor gives a logic basis for the treatment of the condition. Since the infection is not merely a surface one, but is one which involves the deeper portions of the skin, it is not possible to attack it by external local applications. As is to be expected, the various surgical methods advocated have usually failed in the cure of pruritus, at best giving but temporary relief. Further, the cure of associated rectal affections does not relieve pruritus. The most satisfactory treatment, and one which is quite rational, is by the administration of an autogenous vaccine, made from the *streptococcus faecalis*. This vaccine contains 2,000,000,000 organisms per mil, killed by one-half per cent. phenol or one-third per cent. tricresol. The initial dose is about 0.2 mil subcutaneously. The doses are rapidly increased in size until a good reaction is produced, the number given varying with the individual case. Along with this treatment prophylactic measures to prevent reinfection should be taken, such as bathing the anal skin after each defecation. The treatment will not cure every case, but it is far more successful than any other so far employed by the author.

Rickets as an Etiologic Factor in the Production of Weak Feet in Children.—Rickets as an etiologic factor in the production of weak feet in children has not frequently been considered. Horwitz (*Interstate Med. Jour.*, Aug., 1918) says little attention has been paid, as a rule, to rachitic children in order to prevent and correct foot weakness. In older children in whom a foot defect has been noted, some method of correction has been instituted, but in the infant and the child beginning to walk it is neglected.

If we were to consider rickets as a constitutional disease, leading to foot weakness and disturbance, at times resembling true paralysis,

we would render humanity a service. If we were to regard rickets much in the same light as poliomyelitis, and remember that foot disturbance both in form and function must result, much as we remember that foot deformity in poliomyelitis will and must result if the limb were left to itself, a different attitude would be assumed by the practitioner and even by the pediatrician, and more useful feet and less weakened feet in children, and consequently in adults, would result. A larger amount of weak feet exists than is the general supposition, and to leave rachitic children alone, with the idea of self-correction, is not wise.

In rickets, as in poliomyelitis, the muscle weakness is not symmetrical, and the action of the synergists is disturbed. While, as in poliomyelitis, gravity plays an important part, in rickets weight-bearing is the controlling factor. In the former the deformity may take place before the child is able to walk; in the latter it does not take place until walking has been begun. This ought to give us a better opportunity to prevent deformity.

This deformity in rickets is just as easy to foretell as in poliomyelitis. In a limb weakened by rickets the child persists in the walk used by an infant—that is, the legs are widely separated to give a larger base for support. In this attitude, if prolonged, the feet are naturally abducted and pronated. This in itself leads to deformity of the leg.

Whether the leg in rickets shall be bowed or knocked depends on this early walk of the child. There are, however, two strong predisposing factors. One is that in the female an approach of the knees is the normal, predisposing to actual knock-knee. Another is the normal slight lateral bowing of the tibia, predisposing in some to bowlegs. Where the tendency to knock-knee does not exist, the bowing has the ascendancy. Added to this the separation of the legs and the eversion of the feet in the gait of the rachitic child, the knocking would be exaggerated. The points, therefore, to bear in mind are that rickets produces a muscle weakness much as poliomyelitis does, and that certain deformities can be foretold, and prevented if proper methods were instituted.



Allen Treatment of Diabetes.—Of great importance, says Allen (*Northwest Medicine*, March, 1918), is the need of observing certain important matters in the conduct of this method of treatment if the best results are to be obtained. In the first place a complete physical examination should be made to discover all abnormalities associated with diabetes or which

may influence the results of treatment. Thus all foci of infection should be eliminated before treatment is started, the Wassermann test should be performed to determine the presence or absence of syphilis, tuberculosis should be sought for, and the circulatory system should be examined carefully. In the second place it is absolutely necessary that the treatment be individualized for each patient. In severe cases residence in hospital with the care of a competent nurse is essential at the beginning. In less severe cases daily visits to the physician's office are essential during the fasting period and the urine must be examined daily, a twenty-four hour specimen being used. In general alcohol and soda should not be given, but sometimes one or the other may be helpful. Patients must be taught to approximate the caloric values of the foods which they eat and to know the approximate content of each in fat, protein and carbohydrate. Continual use of the proper foods within the limits of tolerance is the most important of all factors. The weight of the patient should be kept below normal, but not more than fifteen per cent. below. Excess of food of any form is harmful and a daily intake between 1,600 and 2,000 calories is usually sufficient. Frequent careful determinations of acidosis are essential. Physical exercise is extremely important to shorten the period of fasting and to restore and increase the patient's strength and tolerance. Self-denial and will power should be encouraged and the patient's environment, habits and mental attitude deserve investigation and control. Work should be limited to eight hours daily and an abundance of rest assured.

Rectal Feeding.—As Cornwall points out (*Jour. A. M. A.*, Mar. 18, 1918), the colon does not possess adequate digestive functions and that, therefore, the food administered thru it must be predigested or such as is absorbed readily. Rectal feeding should also aim to provide an adequate protein ration in the form of the aminoacids in proper proportions, salts, the vitamines, and carbohydrate for fuel. Milk provides the protein constituents, a large proportion of the mineral salts, and some of the requisite vitamines. It should be peptonized and pancreatized completely before being used. Owing to its capacity of undergoing lactic acid fermentation it tends to prevent protein putrefaction and is of advantage on this account. Fruit juices provide the vitamines and other mineral salts, and glucose is the ideal carbohydrate. A satisfactory prescription for rectal feeding, based on these facts, is: Glucose, thirty grams (one ounce); strained juice of a half an orange; sodium bicarbonate, two grams (thirty grains); a like amount of sodium chloride, and water to make 300 mils (ten ounces). This is to be given at 6 a. m., and at 8 a. m., 150 mils (five ounces) of peptonized and pancreatized skimmed milk are given. Then the same mixture as for 6 a. m. is repeated at 4 and 10 p. m., while the milk is repeated at noon, 6 p. m., and midnight. This diet provides

twenty grams of protein and a fuel value of 700 calories. It may be altered as required by increase or decrease of the glucose, addition of glucose to the milk, addition of 0.3 gram (five grains) of calcium chloride to the glucose enemas, and by adding a culture of acidophilic bacteria to any of the enemas. A second plan providing the same amount of fuel, but no protein, consists in the administration every four hours of the glucose mixture of the preceding. The enemas should be given at 100° F., injected slowly, and the patient's buttocks should be elevated while he lies on his right side during the injection. He should maintain this position for half an hour after the administration of each feeding. Every second day he should be given a colonic irrigation with physiologic salt solution.

Antiscorbutic Value of Raw Juices of Root Vegetables.—Harriette Chick and Mabel Rhodes in their exceedingly practical and valuable article (*Lancet*, December 7, 1918) call attention to the relative deficiency of raw cows' milk in antiscorbutic substances and to the further fact that the heating of milk materially reduces the small antiscorbutic properties present. Since most cows' milk now fed to infants is heated at some stage or in the preparation of the diet, it is necessary to provide additional sources of these vitamines. Fresh oranges are the best for this purpose in point of activity, but they are often difficult to secure and are frequently very expensive. In the desire of finding some substitute, the authors investigated the antiscorbutic properties of various root vegetables and found that the fresh juice of raw turnips was actively antiscorbutic; that of raw carrot, slightly active; and that of beets about the same as carrot juice. Steamed potato was fairly active. The juices of the raw vegetables can be obtained by grating the vegetable, putting the material into muslin, and squeezing it gently between the fingers. The juice should be prepared fresh daily, as it undergoes changes readily and loses its antiscorbutic properties rapidly.

The Heart of a Pregnant Woman.—According to Bureckhardt (*Amer. Jour. of Obstetrics*, Dec., 1918) an early diagnosis of a heart lesion is essential for successful therapeutics. The history of the case is important: Menstrual disturbances, aversion to exertion, vasomotor disturbances, a multipara who has never regained her full strength after a previous delivery, pyelitis, other forms of sepsis, and toxemias should be looked upon as suspicion. To depend on marked objective changes in the heart and the general system means the loss of valuable time. Low pressure, the absence of accentuation of the pulmonic or aortic second sound, the displacements of the cardiac outlines, and the change in intensity of murmurs over the ostia, are of greatest importance. The frequent simultane-

ous occurrence of a toxemia and a cardiac disturbance, caused perhaps by the same factor are important; relatively low pressure, with a steadily increasing amount of albumin, of blood nitrogen, granular casts and blood cells presages early collapse. Drastic measures, if unavoidable, include prolonged and absolute rest in bed, the use of opiates, and larger doses of digitalis, all of which interfere with the essential metabolism. Impregnation should be prevented if possible; if conception has occurred, it should in all but the severest treatment be carried to term. Rest and exercise, neither half-heartedly, should be prescribed. Blood pressure readings, especially between the thirty-fourth and thirty-fifth week when daily observations are necessary in order to determine the proper time of interference and when patients should be confined to bed, assist greatly in controlling the patient's work. Settling usually gives a considerable amelioration of symptoms and patient may be given more liberty. Offending tonsils or teeth should be removed; any nasopharyngeal or dental work should be attended to. And last but not least, digitalis to regulate the work and rest of the heart.



ENCEPHALITIS LETHARGICA.

March 14, 1919.

To the Editor,

AMERICAN MEDICINE, New York City:

Reports have been received from various European cities which indicate the prevalence, in epidemic form, of a disease which has been named encephalitis lethargica. The first case of the disease in this city was reported to this Department on March 12, 1919, and information has since been received from authoritative sources that there are eight other cases under observation in which this disease is suspected. In view of the fact that it is essential for us to be apprised as promptly as possible of the occurrence of cases of this disease so that we may take such measures as may in the premises be necessary, I would earnestly request the co-operation of the physicians of this city in making prompt report to the Director of the Bureau of Preventable Diseases of any case in which encephalitis lethargica is definitely diagnosed or suspected.

The situation at the present moment does not seem to warrant our making this disease reportable by a Sanitary Code enactment, and I look forward with confidence to the cordial and helpful cooperation of your readers in giving us prompt information as to cases of this disease.

Will you kindly bring this request to the notice of the readers of your journal?

Very truly yours,

ROYAL S. COPELAND,
Commissioner.

NEWS NOTES AND ANNOUNCEMENTS

New Red Cross Head a Medical Man.—Dr. Livingston Farrand, who has just assumed his duties as chairman of the Central Committee of the American Red Cross, succeeding William H. Taft, is a graduate of the College of Physicians and Surgeons, Columbia, class of '91, which he entered after his graduation from Princeton in 1888. He supplemented his studies in this country by courses at Cambridge and Berlin, spending three years abroad. From 1905 to 1914 he was executive secretary of the National Association for the Study and Prevention of Tuberculosis. He resigned to become president of the University of Colorado, which post he held when he went to France to become director of the tuberculosis work of the International Health Board in 1917. He entered the field when both countries were staggering almost to the earth and the white plague was working untold havoc in the army and among the women and children. Under his leadership the campaign by American agents achieved results which only can be estimated fully by those familiar with the conditions.

Thru his varied experience in this country and abroad Dr. Farrand is peculiarly well fitted to become the national leader of the Red Cross in its broad, projective peace program. He has always been closely affiliated with the societies concerned with preventive medicine and at one time served as treasurer of the American Public Health Association. He is also a member of the American Psychological Association, the American Anthropological Association, the American Folk-Lore Society, the American Climatological Association, the American Statistical Association, the Society of American Naturalists and a fellow in the A. A. A. S.

The new chief executive of the Red Cross was born in New Jersey fifty-two years ago and comes of a family which has long cherished ideals of scholarship and social service. One of his brothers is a professor of history in Yale and another is headmaster of the Newark Academy.

Dr. Farrand, who returned to this country the last week in January, was chosen by President Wilson for this responsible position not alone for his personal attributes and his broad knowledge of social and political situations in

this country and abroad, but also because of his proved reputation as an able executive and a progressive leader.

Golden Jubilee-Victory Celebration Meeting.—The fiftieth annual meeting of the American Medical Editors' Association will be held at the Marlborough-Blenheim Hotel, Atlantic City, on Monday and Tuesday, June 9th and 10th, and will take the form of a semi-centennial celebration and a victory meeting, emphasizing the part which this Association and its members have taken in the world's war.

The enthusiasm manifested upon the part of the president, ex-presidents and officers of this Association is an assurance of its successful outcome.

A most attractive program is now being prepared and every physician, even remotely interested in medical journalism, will find it to his advantage to attend.

Red Cross Plans Nation-Wide Public Health Campaign.—A nation-wide campaign for public health education is one of the first of the peace time activities to be undertaken by the Red Cross and plans for this are well under way. Realizing that the Chautauqua itineraries offered unusual opportunities to reach communities most in need of health work, the Red Cross Department of Nursing is assigning between thirty and forty of its most able nurses, who have just returned from overseas, to lecture on the principal Chautauqua circuits throughout the country. These lectures are to start about June 1. In each instance the lecture will be followed by a squad of other nurses and Red Cross workers, who will conduct a health exhibit and give practical demonstrations.

A Good Opportunity to Start in Practice.—There is a good opportunity for a first class physician in Wibaux, Mont., one that also can do surgical work.

We would like to get one to locate here right away, and a physician of good appearance and personality would get the support of the town and surrounding country.

Any information which a physician might like to obtain in regard to this town can be obtained from Mr. R. B. Chappell, Vice-President First State Bank, Wibaux, Mont.

Free Clinic for Speech Defects.—The first free medical clinic devoted to the treatment of defective voice and speech conditions has been opened at 143 East 37th Street, New York. The clinic has as its objects to cure all forms of speech and voice disorders such as stuttering, stammering, lisping, nasality, cleft palate speech, etc. It will take care of defective

teeth, mouth, or jaw conditions, when such conditions are the causative factors of defective speech. It will educate or re-educate patients who are deaf or hard of hearing. There will be evening classes three nights a week. The clinic will also maintain a Central Information Bureau and Clearing House for Speech and Voice Disorders.

Narcotic Control Regulations.—For the enforcement of the new antinarcotic law of the State of New York, the State has been divided into three districts. The Metropolitan district of New York has been assigned to the first deputy, George H. Whitney, of Mechanicsville, N. Y., and to the third deputy, Mrs. Rita A. Yawger. The Western district has been assigned to the second deputy, Dr. Addison T. Halstead, of Yates County, and the Albany district will be under the immediate supervision of the commissioner, Frank Richardson. Blanks have been sent out to 30,000 persons who will be required to use such blanks either in the purchase, the sale, or the prescribing of narcotics.

War Increases Mental Disease.—Figures compiled by the New York State Hospital Commission show that 3,995 more patients have been admitted to the State hospitals during the forty-four months since war was declared than for the similar period of time prior to the beginning of hostilities, the admissions prior to the war being 29,316, as against 33,311 afterward. The State hospitals are actually housing 6,500 more patients than they were built to accommodate. The State Commission on the Feeble-minded has mapped out a program for the relief of this condition, which has been presented to Governor Smith.

Guard Port of New York Against Smallpox.—A statement recently issued by Health Commissioner Royal S. Copeland calls attention to the fact that smallpox of a virulent type is raging in certain sections of Italy, and to guard against the disease being brought into New York the strictest precautions must be observed. The closest possible inspection is made of every incoming vessel from an Italian port. Every passenger from Italy will be vaccinated if the time since the departure of a ship from an infected port has been less than sixteen days. No passenger will be permitted to land until that time has elapsed. The New York Health Department is given the name and destination of every person who enters the United States. If he tarries in New York City he will be kept under the observation of the officials of the Health Department until all possible danger has passed. If he does not remain in the city the health officials of the place to which he is going are notified. The health commissioner announces that there is no occasion for alarm at the present time, the purpose of the statement being to avoid disquieting rumors and to fortify the public against groundless fears.

American Medicine

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Deficiencies in Medical Education.—

The results achieved by medical men in the war have been adjudged excellent, and reflect credit upon the profession. There were numerous errors shown, however, in the process of selecting the personnel so as to eliminate those for one reason or another unfitted for types of service demanded by the military authorities. The shortcomings revealed are considered by Brigadier General E. L. Munson (*Journal of the American Medical Association*, April 12, 1919). Whether or not his criticisms will be fully substantiated by official statistics when compiled is a matter of conjecture. His impressions, however, merit consideration, particularly, in view of the fact that they call attention to real problems which had to be met in the development of the Medical Reserve Corps.

The old Medical Reserve Corps of the United States Army, whose existence proved its practicability as a first-line medical defense in meeting the emergency needs of the government, underwent investigation and examination with a result that probably about 15 per cent. were deemed to be professionally undesirable. The original method of commission of medical officers was so unscientific that many medical officers were inducted into service, tho not actually qualified for the work to be done. Readjustments were therefore necessary for both the "misfits" and the "unfits." Ac-

cording to Munson, probably 10 per cent. of the men who came to training camps might be grouped as substandard as far as professional efficiency was concerned. This view is partially supported by the fact that "salvage classes were begun in camps for the purpose of raising the standards of medical knowledge, and in order to refresh the memory of candidates for commission." At some times the reclamation classes at Camp Greenleaf amounted to as large as six to eight per cent. of the student officers group.

It is significant that from a study of qualification of candidates, the Board of Examiners found the proportion of really high grade men in internal medicine to be small, and "only about six per cent. were really high class surgeons." It is patent that if this represents the average of professional qualification, our system of education and practice cannot be regarded as satisfactory. There is nothing in Dr. Munson's article to differentiate between the educational and practical qualifications of graduates of fifteen years' standing, and those who gained their professional training before that period. It is only natural that men who were graduated from poor medical schools revealed lower qualifications than those who were graduated from schools of the better type. Similarly, the mental standards of these graduates of inferior institutions were on a lower scale than those trained by the class A medical institutions. It is a cause

for wonderment and astonishment to learn that the psychologic tests of officers and men at Camp Lee indicated that "the group of physicians ranks lower in mental alertness than any other group of the military class, except the supply train, dentists and veterinarians." Investigation indicated that this condition was largely due to the number of applicants who had come from poor schools and small communities where opportunities for development were lacking as the supplemental cause of inferiority to ordinary hereditary weaknesses.

From the standpoint of civil practice, there is greater cause for interest and inquiry over the fact that a large proportion of alleged specialists were only partly qualified for the work they represented themselves capable of performing. As Munson rightly maintains, "For a man to claim the qualities of an expert, even if his claims are accepted by the general public, does not make him an expert, and one of the chief functions of medical education is to safeguard the community."

The deficiencies of medical education, as suggested, refer more specifically to preventive medicine, hygiene, sanitation and fitness to practice specialties. It is unfortunate, but not entirely unexpected, that the general average of the profession was not revealed to be higher than described, but unless there is contrasting evidence as to the status of recent products and those of licentiates of many years' standing, it is impossible to establish definite conclusions or to point out the most satisfactory method of adjusting the difficulties. Medical education in the United States has been so free and generous that there has been developed about one physician to every 700 prospective patients in the United States. This is in sharp contrast to the one physician to each

1,537 persons in England and Wales, one per 1,969 persons in France, one per 2,124 persons in Germany before the war.

In 1901, there were 154 medical schools in the United States which, because of the pressure of publicity as to inferiority in equipment and teaching, were gradually reduced to 100 in 1914. Similarly, the student body declined from 27,000 in 1903, to only 14,000 in 1916. It is probable that a comparison of the relative merits of the graduates of the past ten or fifteen years with those of years antedating 1904 would indicate the marked advances in professional standards of ability and efficiency to the great advantage of the younger generation of medical practitioners.

It is manifestly important to recognize the numerous difficulties of medical education directly or indirectly referred to by General Munson in the interest and the improvement of the educational status of physicians. His case, however, is by no means proven, and his numerous allegations will require considerable supportive testimony in order to demonstrate their completeness and accuracy.

The accomplishments of the medical profession in the war reflect considerable credit and distinction upon its members and, in all probability, the errors committed were not in excessive proportion compared with similar deficiencies which occurred in other branches of the service because of a similar degree of inexperience and lack of specialized training for a military career. The type of work performed under the stress of war was largely emergent in character, and the response of the profession to this emergency was quantitatively satisfactory, and, undoubtedly, qualitatively gratifying. Professional standards have not been determined and an ideal state has not been

achieved. Measured by the criterion of ideal performance, undoubtedly many criticisms are deserving, but from the standpoint of human accomplishment in the light of medical progress and education, which has been too free and unrestricted, the results of the medico-military forces may be regarded as excellent, and the criticisms, while legitimate, may be condoned because of extenuating circumstances.

It cannot be gainsaid, however, that constructive criticisms of our system of medical education are always welcome and should receive the thoughtful attention of those responsible for the development of graduates in medicine. For this reason, General Munson's allegations and comments should receive a cordial hearing and not only result in a more careful scrutiny of the products of our medical institutions, but possibly lead to a revision of some of the antiquated methods still persistent with reference to standards at entrance, the distribution of subjects in the curriculum, and the determination of qualifications for licensure.

Various lines of improvement in medical education are suggested by Robert W. Lovett (*Boston Medical and Surgical Journal*, April 10, 1919). As he properly states, "the object of the medical school is to make good and efficient doctors; and no matter how good or elaborate the medical curriculum may be, if it fails in furnishing such good and efficient doctors it needs revision and improvement."

Handshaking.—The difficulties of avoiding contact infection are interestingly portrayed by Captain G. T. Palmer of the Sanitary Corps (*American Journal of Public Health*, April 19, 1919). He presents in

tabulated form the chances for acquiring infection during the course of an ordinary day's living. His table of contacts includes 119 different items, from the touching of doorknobs and faucets, various eating utensils and money, to handshaking, receiving newspapers and performing the ordinary acts involved in the simplest living, exclusive of the touching of things, such as pencils, pens, and other articles which are only remotely handled by others. As he properly notes, the mere infection of the hands is not of great significance, except insofar as pathologic organisms are received and transmitted to the mouth or nose, where they may become sources of infection.

His experiences point out that the major contacts were in touching articles that were or might have been touched by others immediately before, in shaking hands, in carrying to the mouth articles possibly infected by others. In a few instances, the hands were brought directly in contact with the mouth, and in other instances, the hands were touched to the nose indirectly thru the handkerchief. His records really present, thru a day's functioning, seven hand-to-nose contacts, and two direct hand-to-mouth contacts. The lessons of practical value that he draws are as follows:

"1. That we should use handkerchiefs one side of which is conspicuously colored or marked so that we may always apply the hands to one side reserving the other side for the nose. This will protect our own nose from our hands and help to prevent the infection of our hands.

"2. That we should abandon the universal practice of shaking hands, substituting some other less intimate method of salutation.

"3. That we should encourage means which will lessen the opportunity for public

restaurant employees to handle eating utensils."

The suggestion in section one undoubtedly possesses certain advantages and represents the procedure that was utilized in the employment of masks during the influenza epidemic. It represents a refinement of procedure, however, which it would be difficult to accomplish, unless handkerchiefs were only used in the light, and even with adequate lighting it would prove to be difficult for those anxious to cover up a sudden cough or sneeze.

The second suggestion is psychologically unsound, and instils a degree of fear for personal contact which is by no means commensurate with the existing dangers. There are social and psychologic values in the hand-clasp, which are of far greater importance in the welfare of human beings than can be nullified by any potential hazard involved by this social amenity. It would be far more rational to advocate a great frequency of handwashing before eating or before bringing the fingers in contact with the mouth, eyes or nose. Even this procedure has marked limitations, particularly in relation to the free and easy habits of infancy, childhood and adolescence, not to mention the shortcomings which are found in the lack of hygienic facilities in the industrial world.

The third suggestion is obviously sane, and represents a form of sanitary improvement which is economically adopted in connection with cafeterias. Washing-machines are used in increasing number in all save the smallest of restaurants, and personal contact of food handlers with dishes and other utensils is being eliminated with increasing success. Various regulations are being enforced for the examination of food handlers so as to insure their freedom from

contagious disease while performing public service in connection with administering to the dietetic needs of the public. Habits of cleanliness are being instilled and the various abuses, such as wiping plates and silver with towels ceremoniously carried under the arm, are being corrected. There is still a wide opportunity for improvement in this direction, but at least health departments are cognizant of the necessities of improved sanitation in public eating places, and are taking steps thruout the country to secure the abatement of what amounts to unsanitary nuisances.

While it is true that the theory of air-borne infection is rapidly becoming secondary to our belief in direct contact infection, it must not be deemed as heretic to regard contact transmission of epidemic diseases as not universally proven. Undoubtedly, the dangers of disease transmission thru coughing and sneezing are as great, if not greater than the hazards incident to hand to mouth infections in the vast majority of communicable diseases. It cannot be gainsaid that direct and indirect contacts with infected material reaching the mouth and nose are responsible for a certain degree of dissemination of typhoid fever, tuberculosis, syphilis, gonorrhea and diphtheria, but it is doubtful if these play much part in the spread of influence, pertussis, measles, scarlet fever and others of a similar series of contagious diseases.

Considering all phases of contact infection, it is quite probable that the smallest amount of danger is to be found in the practice of handshaking. The practice of osculation, theoretically, has numerous and sundry objections, altho the general employment of this means of greeting is certainly not followed by a high degree of transmission of the diseases potentially capable of

being transmitted by this means. Obviously, handshaking is far less hazardous than osculation. In our desire to promote hygienic and sanitary improvements in personal and home hygiene, sight must not be lost of the practical, esthetic and social advantages that are involved in the remedies suggested. The creation of unnecessary fears is far more dangerous to public health than the continuance of a comparatively harmless ceremony. The gain that would obtain from the cessation of handshaking would be more than offset by the underlying fear serving as the reason for the discontinuance of this social practice. Pedagogically speaking, it is far wiser to eliminate many of our "don'ts," and to substitute more "do's."

The relief from the dangers of contact infection is to be found in more handwashing, more bathing, more use of the handkerchief, more constructive directions as to the manner of right living, rather than employing the ultra refinements of a black spot on the handkerchief, or an abandonment of handshaking.

indispensable constituents of the diet, such as certain of the amino-acids which play a role in protein metabolism. The ending *amine* has a definite and specific meaning in organic chemistry, being used to designate a compound derived from ammonia by the substitution of one or more of its hydrogen atoms by various organic radicals. Any substance to be properly designated as amine must contain the element nitrogen. There is no evidence that either of these unidentified dietary essentials is an amine, and indeed fat soluble. A probably contains no nitrogen, for it is especially abundant in butterfat, and the latter is practically free from this element."

Recent studies are strongly suggestive that two substances of an unknown chemical nature are essential for adequate nutrition, and McCollum and Kennedy have provisionally termed them fat soluble A and water soluble B, because of their characteristic solubility in fats and in water respectively.

The use of terms should carry with it a certain degree of exactness and definiteness, and it is not quibbling to seek to establish a nomenclature that is accurate and descriptive. For this reason, the use of such expressions as "accessory foods," "growth substances," "growth determinates" and "food hormones" are undesirable, if not objectionable, to describe substances, the exact nature of which remains undetermined save to the extent that they have been proven to be essential for optimum nutrition.

The use of fat soluble A and water soluble B in terminology is hardly acceptable permanently because of their indefiniteness, tho virtually the expressions include most of the chemical facts known regarding them. From a biologic standpoint,

The Biologic Food Tests.—Since 1911, when Funk described what he termed "vitamines," the problems of nutrition have been undergoing a more thoro investigation. Under the term "deficiency diseases," there have been included beriberi, scurvy, pellagra and rickets, on the theory that deficiencies of certain substances accounted for the occurrence of the diseases. Funk differentiated vitamines into various types such as the antineuritic, antiscorbutic, and so forth.

According to McCollum and numerous coworkers, it appears to be undesirable to continue the term "vitamine," "because the prefix *vita* connotes an importance of these dietary essentials greater than other equally

however, it has been amply demonstrated that a dietetic regime, failing to contain a relative abundance of these two substances, results in certain forms of malnutrition, or in the development of the eye disease, xerophthalmia. Biologically speaking, therefore, the foods containing large amounts of fat soluble A and water soluble B, the unidentified dietary essentials, are properly termed by McCollum and his coworkers as protective foods.

There are marked differences, from the standpoint of nutrition, between diseases directly due to lack of these unknown substances A and B, and states of nutrition depending not so much upon their absence, as upon maladjustments in the quantity and quality of the protein or the character and amount of the inorganic constituents of foods. Predispositions to disease, by reason of faulty diet, are manifestly different than diseases themselves dependent upon the lack of an essential constituent of the dietary.

It is patent that biologic methods possess an inherent worth superior to chemical analysis. Chemistry *in vivo* and *in vitro* are not necessarily identical. The determination, therefore, of nutritive values is far more satisfactory when based upon animal experimentation than when based upon the theoretic constitution of foods as determined in terms of protein, fat, carbohydrate and ash. All proteins are not alike, nor is the quota of energy identical in foods of the same chemical formula. Chemistry fails to present biologic values. The values of chemistry and the problems of nutrition are not to be underestimated, but deserve to be evaluated in relation to human metabolism. To assume a conclusive knowledge upon comparative food values on the basis of chemical structure at the present time is inadequate because chemical analysis is in-

sufficiently developed to make possible a quantitative determination of more than a small fraction of the digestive products of the proteins and, in consequence, fallacious deductions must inevitably result. For this reason, in the interest of accuracy, some other means must be sought to determine the components of a dietary in terms of types of protein to be supplied.

The practical results of biologic studies

already appear to be considerable, and there is reassurance in the facts thus far available tending to show the benefits of a satisfactory mixed dietary providing that it contains, in addition to protein, fat and carbohydrates, a due proportion of needed inorganic salts and the essential nutritive substances, fat soluble A and water soluble B. These two nutritive factors are freely available, and milk, eggs, and the leafy vegetables are therefore to be eaten in liberal amounts. On the basis of chemical composition, the leafy vegetables would appear to be inferior to seeds, tubers and roots, but they possess a particular and peculiar worth which gives them higher standing in the vegetable kingdom because of their abundance of mineral elements and fat soluble A. Even such excellent foods as the peanut and the soy bean, with their high protein and fat content, possess the characteristics of seeds in that they are low in the elements calcium, sodium and chlorine and do not possess the ability to sustain optimum nutrition without the use of protective foods such as milk and the leafy vegetables as supplements in the food supply.

The growth-promoting powers of fats from different sources vary, and it has been thoroly demonstrated that fats derived from plant tissue cannot be placed in the same growth-promoting class with butterfat, the

fats of egg yolks and the glandular organs.

Meat, itself, is unacceptable as a ration along with seeds unless there is an additional liberal use of leafy vegetables and milk. The evidence of biologic study tends to emphasize the greater need of milk and leafy plants as protective foods in the dietary. A study of the dietetic deficiencies on the basis of chemical constituents is unsatisfactory because qualitative relations cannot be determined along with quantitative. Nor, indeed, can chemical investigation successfully give the bases for judgment regarding digestion or absorption which are essential factors in estimating the nutritive character of food.

The biology of foodstuffs is destined to play a more important part in solving the problems of nutrition, and its growth and development will afford a more rational basis for improving the standards of communal health. Chemistry will continue to play its important part in determining the physical constituents of foods, while biology applies the vital tests to the chemical studies in the relation to the needs of the human economy.

In the *American Journal of Public Health*, February, 1919, Walter H. Brown points out some of the "Health Problems of the Foreign Born." To many, it would not seem apparent that the health problems of the foreign born differ from those born and educated in the United States. The fact, however, that from 1820 to 1915 more than 32,000,000 persons arrived, of all races and nationalities, indicates that there must have been some effect upon the customs, manners and habits of the American people resultant from the imported customs and health and habits brought in to the national life. It is obvious that a comparative study of racial hereditary health and habits is essential in understanding the peculiar problems attributable to the various stocks constituting our populations. Various studies have already been made by Billings, Hoffman, Dublin, Guilfoy and Davis, but despite their significance they supply an insufficient data for the establishment of conclusive judgments.

The continuance of European customs must be fully recognized in any attempt of health administration that seeks to counteract the results of such hold-over ideas in an environment for which they are physiologically inadequate. The relation of social and economic factors to the morbidity and mortality of the foreign born population merits careful investigation as a pre-requisite to drafting any administrative program for the reduction of infant mortality, the control of communicable diseases, or the improvement of personal hygiene or public sanitation.

The general health problems are undoubtedly universal in character, but offer certain peculiarities insofar as administration is concerned, according to the racial origin

Americanization and Health.—The various efforts now being made to secure the Americanization of the large foreign population resident in this country evidence an awakening to the fact that national solidarity cannot be achieved without greater co-ordination of the ideas and ideals of our heterogeneous population. Rational public health administration also depends upon the Americanization of the foreign born, but in addition demands an understanding of the peculiar health problems of the foreign born.

of large segregated or distributed groups of the population of foreign extraction.

The foreigner must not be regarded as an outsider, nor even as a stranger within the gates. There must be no evidence of superiority such as is represented in the use of terms suggestive of inferiority. From the public health standpoint, men are not classified as "wops," "chinks," "fritzies," "frogs," nor are they registered other than as vital units in the organization of a city, state or nation. They are equally problems of a community, with native born Americans of American stock; and from a health standpoint present no greater difficulties than do native Americans, save insofar as linguistic difficulties, racial customs and habits interfere with their normal understanding of the health problems of America.

At the very basis of public health administration lies a complete understanding of all the elements entering into a public health problem. With the understanding there must be sympathy and appreciation of the inherent health potentials of all national groups in the population. In all probability it will be found that the main health problem, constituted by the foreign born population, lies in their economic and social position rather than in their accident of foreign birth. In most instances, the hereditary elements will be found as possessing distinctly helpful health tendencies if properly fostered and permitted to develop along normal lines in a hygienic environment.

In the program for Americanization, there must of necessity be incorporated some scheme involving a consideration of health. If the foreign born are accepted as potential Americans and an effort is made to approach their problems in the spirit of friendliness, constructive criticism and

sympathetic understanding, a great gain to public health will result. To ignore them or condemn them for sins of omission or commission for which they are not responsible is to retard the development of any public health program. The interdependence of public health and private health is so mutual that one may readily appreciate that the foreign born population may be just as much sinned against as sinning, insofar as matters of hygiene and sanitation are involved. The health problem of the foreign born may require more change of sentiment and feeling on the part of the health administrator than it will on the part of foreign born families. Americanization in public health carries with it the dual responsibility of aiding the foreign born to understand his new environment, and to assist the native born to grasp the health values that may arise from the presence of the foreign born.

New Opportunities.—The conservatism of physicians is fully reflected in their failure to grasp opportunities for professional expansion. This is recognized at once in a consideration of the growth of professions whose membership should boast of high percentages of medical men, but which apparently have been more promptly accepted, appreciated and absorbed by those ordinarily designated as laymen. The public health field, for example, is by no means dependent upon the medical profession, altho it may be said, fortunately, that the brightest lights in public health work possess the degree of doctor of medicine. Psychologists have taken up fields of mental hygiene, while pedagogists have been vitally interested in the problems of mental defectives, and handicapped children generally. Psychoanalysts have been drawn from various fields and, in fact, al-

most any person who has undergone psychoanalytic treatment feels competent to set himself up as a trained worker in this direction. In the efforts to study the mental problems of childhood, one finds the medical profession lagging far behind others of non-medical training, as is excellently exemplified by the short course Binet testers, who are doing irreparable harm in publishing their conclusions regarding subjects for which their preparation has been totally inadequate.

The inauguration of various public health movements, such as those for the prevention of tuberculosis, the prevention of infant mortality, the conservation of vision, the control of cancer, the introduction of medical inspection of schools, the control of venereal diseases, may be attributed more largely to the interests and efforts of non-medical men and women than to the initiative and influence of the medical profession.

With the development and expansion of public health programs, it is patent that a large variety of new positions are to be created involving more than a knowledge of traditional medicine. Time will determine in how far physicians recognize the importance of these new fields and prepare themselves for taking up phases of activity for which the demand already exists, and for which demands will be created. If the same backwardness in accepting alterations in the medico-social machinery continues, the profession will suddenly find itself faced with a marked limitation of its field, with a corresponding decline in public usefulness. There is a vast difference between the scientific balance of values and a general tendency to oppose innovations. The world is moving rapidly, and unless physicians awaken to the fields of progress to be

cultivated in the future, there will be a day of reckoning in which the balance will reveal marked losses to the profession.



MEN AND THINGS

Psychoanalysis and the Kaiser.—For the simplest explanation of the Kaiser's grotesque personality one must go to the most complicated of sciences—psychoanalysis. His interview, given out to the world in a querulous moment and retracted in the panic that followed such an extraordinary self-revelation, must remain as a psychologic monument for all time. The Kaiser was always a garrulous old paranoiac, and the generals who conducted his pathetic career knew what they were doing when they assigned Karl Rosner to him as a press agent and let him talk his heart out over tear-stirring violets and such-like things for the benefit of a public to which Wilhelm had successfully played for thirty-odd years. His interview granted to Harold Begbie was very much in character, but for once the Kaiser spoke honestly, and immediately afterward he regretted it. His denial that he ever gave an interview to anyone is of no avail; any student of character knows that the strange things he uttered were so genuine a product that it could not have been manufactured. To those who knew the man only as a boastful, swashbuckling, blood-and-thunder imperial hero, the whimpering, sniveling nature of his message to the world must have come as a surprise; but to the psychoanalyst the man who acknowledged a partnership only with Gott (and Gott the junior partner) was never a puzzle. Long before the interview was made public, a well known disciple of Freud set him down as suffering markedly from an inferiority-complex, and it is this inferiority-complex which is at the basis of all the Kaiser ever said, thought or did.

It is common knowledge that Wilhelm Hohenzollern is a cripple, and it is almost

as well established that he came into the world under the handicap of inherited disease. This scion of a great imperial house, destined to become the ruler of an aggressive, masterful race of Nietzschean blond beasts, was in no wise suited for the rôle destiny had imposed on him. His shrunken arm, his pathetically puny figure, his whole unheroic and unprepossessing makeup were a constant source of humiliation to him. Realizing this, the one aim of his life was to deceive the world, to draw attention away from these shortcomings, to impose himself on the public as a giant, physically and intellectually, as a colossus of courage and ability, as the perfect symbol of perfect kinghood. And every utterance of his career, every act of his rule, was designed toward this end. Charity might betray weakness; he must not be charitable. Kindness might betray a desire for sympathy; he must not be kind. An inclination toward peace might indicate cowardice; he must become known as the greatest war-lord of all time. Hence his coalition with the heartless war party of Germany in the effort to build up the vast war machine which drained the resources of Germany; hence his famous Hun speech to the German troops who were dispatched to China during the Boxer rebellion; hence his periodical, blustering challenges to the world at every crisis in which his country was involved. And in time the world began to believe that the man was really modeled after a heroic pattern. Many able observers were deceived. Even such a shrewd judge of character as the late Col. Roosevelt was taken in. But the great test came when Germany lost the war and the Kaiser had to flee the country. His career had come to an end, he was a failure, he was found out. And what defense did he offer to an undeceived world? What justification did this fearless hero offer for the course he had pursued so confidently for three decades? His famous interview is the answer. Robbed of his glittering entourage of impressive uniforms, of the camouflage of royalty that always protected him, he stands revealed for what he is and always was—a maudlin, quaking, whimpering weakling. And, cowering under the lash of the world's accusation, he tells more of himself than the public has ever suspected.

"Don't blame me!" he cried. "It wasn't my fault. I didn't do it. My generals are re-

sponsible. I didn't want the war. I was a lover of peace. My generals and my diplomats wanted war, and I was thrust aside without any consideration. My generals did as they liked and they never told me anything. I was only a figure-head. When an important message arrived at headquarters, I was shoved out of the room, so they could take it up among themselves. They tacked Karl Rosner on to me, and sent me around the country making pretty speeches—anything so long as they had me out of the way. Those nasty diplomats were the ruin of me. If it were not for them, I'd still be a great man in the eyes of the world. I didn't dare open my mouth to protest. I was a puppet in their hands. Don't blame me. I couldn't help it!" All of which is so amazingly interesting because it is amazingly true. The Kaiser was nothing but a puppet in the hands of the German war-makers. He acknowledges it now. Trapped by defeat, he frankly admits the inferiority which it had been his life-work to conceal. Robbed of his pose, he cringes and squirms and begs for mercy. He didn't do it! Fearing punishment at the hands of the English, he goes to great lengths to assure his English interviewer that he has always loved the people whom his Zeppelins murdered in cold blood. Fearing French retribution, he effusively insists that he has always been an admirer of French culture. Fearing the vengeance of the deceived German people, he swears that he has always tried to lead them into the ways of peace. Fear is the keynote of his whole confession. For the first time in his career, he utters the truth; and then, aware of how much he has revealed, he grows alarmed, and retracts the confession. He didn't do even that! There never was a more clear case of inferiority-complex.

John Barleycorn and Lady Nicotine.—

Well may the gentle epicure, long secure in the enjoyment of his pleasant vices, tremble, for the horizon is black with clouds of reform. Intoxicated by their successful battle against intoxicants, the reformers are gathering their forces for a nation-wide crusade against tobacco, tea and coffee, in an effort to wipe out all the stimulants which enslave modern humanity.Flushed with an exaltation which only the privileged missionary

can feel, they have firmly resolved to rid mankind of all its wicked habits. Having struck the death-knell of John Barleycorn, they now aim at making a cemetery of man's most innocent and consoling sins. Their program is a sort of Bartholomew's Slaughter of stimulants. The epicure must blanch with terror as he contemplates this dire campaign to make his life one monotonous, grey, uninspired routine of virtuous living. To the disciple of refined corruption, the Day of Doom seems to be approaching.

With what measure of success will this new campaign meet? After all, the bond between John Barleycorn and mankind was only one of platonic friendship—the most difficult of all relationships to maintain. For that reason the divorce was not hard to achieve. But the bond between mankind and Lady Nicotine is of another kind altogether. Lady Nicotine has been man's mistress, her place undisputed, for many generations, and the bond between them has always been a passionate one, yielding to no other in the fidelity with which it has been observed. So long has it endured, that it has become nothing less than a morganatic marriage, recognized the world over as a legitimate and binding tie. And the marriage has been a fruitful one. Under the spell of Lady Nicotine, the amber mistress of unparalleled beauty, the artist has created his most impressive canvases, the poet has penned his immortal lines, the dreamer has woven his imperishable dreams. Lady Nicotine has been wife, mistress and mother to the creative individual. She has brought him consolation in his darkest moments, inspiration in his barren moods, and she brought forth the children of his brain. She has strewn the paths of creation with flowers. Tobacco has been the twilight sleep which reduced the labor-pains of some of the world's greatest ideas, the ideal anesthesia of artistic creation. But the reformers, unmindful of the splendid tradition that has grown about Lady Nicotine, have filed divorce papers and will soon institute proceedings against the cruelly maligned lady. And, if we go by the promise of the reformers, the suit will be pressed with all the energy they can command. The movement is well backed and the financial contributions are already of such proportions as to assure a long and bitter contest. To quote Professor Frederick M. Roman, of Syra-

cuse University, leader of the campaign against tobacco, big business in America is behind the efforts to eliminate habit-forming drinks and drugs, and all the financial backing needed for the anti-tobacco movement has been secured. Professor Roman's statement, however, is misleading. The tobacco industry comes very easily under the head of "big business," and that industry will not be found among the contributors to the reformers' funds. The coffee and tea industries will be no more inclined to assist in the cause. They represent millions, and one can readily believe that these millions will be used freely to combat the movement. A contest of the greatest magnitude may therefore be looked forward to. Already spokesmen for these industries have accepted the challenge. Mindful of the errors which the liquor interests made in allowing the prohibitionists to carry on their work without opposition, there is a strong disposition to anticipate the new movement, to disarm it at its very inception, to institute a counter-campaign without any loss of time. The fight will be a most interesting one. The reformers were able to make out a convincing case against liquor, which laid itself open to many just charges. But it will be a more difficult task to show that tobacco is a vicious element in the life of the individual or of society, and it will perhaps be even more difficult to prove that tea and coffee are forces for evil. On the side of those who will fight to maintain these elements will be the natural affection which the public has for these lesser evils of civilization, which, in the intense and trying circumstances we are living under today, have become a necessity to those who need a whip to goad on their highly taxed energies and their greatly tried nerves. That this necessity is recognized is manifest from Professor Roman's admission that the campaign to eliminate tea and coffee will not be commenced until a fitting and harmless substitute for these drinks is found. A substitute, to be effective, must be adequate; and how can it be adequate unless it has all the marks and the properties of that which it replaces? The task of the reformers in this instance will certainly not be an easy one.

Drugs, Good and Bad.—The indiscrimi-

inate use of the word "drug" in the newspapers of the country has aroused considerable disquietude among the drug dealers, who feel that the public is being prejudiced and misinformed in such a way as to do harm to the legitimate trade in drugs. Alarming headlines, announcing "drug" raids and campaigns against the use of "drugs," have been appearing in newspapers everywhere with such persistency that an effort is being made to enlighten the public and correct the false impression which such abuse of the word must lead to. "This practice," announces the literature of one conscientious firm, "is alarming the legitimate doctors and druggists, for it tends to discredit them both and to weaken the confidence in essential drugs. . . . We are certain that most druggists and doctors are doing all they can to restrict the use of narcotics, and therefore they should not be needlessly handicapped by the false impression created in the minds of the public by the misuse of the word 'drug' on the part of the newspapers. The legitimate physician and druggist should be upheld in their effort to maintain the high standard of character they have set for themselves." AMERICAN MEDICINE is glad to give space to this appeal and help correct the mistaken impression that is sure to arise as a result of a failure to distinguish between harmful trade in narcotics and the legitimate manufacture and dispensation of essential drugs. In justice to the well-meaning doctor and druggist this distinction should be made clear in the mind of the public. It is wrong to assume that there is any intentional design among the newspapers to mislead their readers. The word "narcotic" does not lend itself to space conditions as readily as the shorter and more convenient word "drug," and it is this consideration alone, without doubt, which has been instrumental in the choice of the shorter word by the writers of newspaper headlines. Nevertheless, the exclusive use of this word, almost always in a derogatory sense, involves a real injustice which should be discouraged. Editors would be doing a real service to the essential commerce in drugs by discriminating between the good and the bad.

The Strange Psychology of the People in Germany.—Too much has been made of

the alleged unfathomable mystery of the German psychology, of the incomprehensible and all too often grotesque working of the German mind. Thruout the war there had been a tendency on the part of the shrewdest thinkers among the Allies to throw up their hands in despair at the amazing antics of the German process of logic and to confess that science is baffled in the presence of such unparalleled methods of thinking. Now once more there is a general throwing up of hands, a general confession of inability to understand the mystery of the German mind. The occasion is the protest of German scholars against the treatment of some of their colleagues in the University of Strassburg at the hands of the French command. Some of these scholars, it is said, have been forced to leave the University on twenty-four hours' notice on the order of the French authorities; and German scholars have lodged a complaint with the rector of the University of Upsala, Sweden, on the ground that such dismissal is prejudicial to the interests of science. They appeal to university men the world over to rally to the defense of science—and their colleagues. This appeal has been made public, and Dr. Butler, president of Columbia University, has replied to it. In this reply, he shows amazement at the impudence of the German scholars. The memory of Louvain still fresh in the minds of all students, the memory of so many outrages and atrocities against art and culture still unforgotten, he voices his astonishment that these German scientists can have the hardihood to speak in the name of scholarship in protesting against the unjust treatment of their comrades. Have they so soon forgotten the cruelties suffered at the hands of the German militarists, cruelties which were never protested by the German scientists who seem to be shocked by allied irreverence for culture? The world is once more puzzled to understand the strange composition of the German brain.

And yet we can conceive nothing quite as simple (as pathetically simple) as the German psychology. It is amazing that it is so little understood. Ever since the victories of 1864, 1866 and 1870-1871, the German nation has been nurtured on the belief that it is the chosen of God, that it is the Superman of nations. The philosophy of Nietzsche

was the philosophy of every individual; the ideal of the cruel "blond beast" was the ideal of every German. The race was to the fleet, the combat was to the strong, and Heaven pity him who showed the slightest trace of Christian sympathy, of hesitation and weakness. These were the vices of modern civilization which the Superman must avoid. He must not fear cruelty, he must crush under heel anything or anyone that rises in his path. Infatuated with this philosophy, infatuated with the flattering belief that he was the triumphant symbol of this philosophy, the German swung flamboyantly onward toward his great destiny. And, for more than forty years, he was able to make good his bluff because he was never challenged. It was a noble attitude and a brave one, guaranteed not to fade or shrink—but the first rain that came reduced it to a mere pulp of fabric and dye. The war lost, the bubble of boastfulness pricked, the Superman squirming under the heel of the conquering dwarf, all his bravado and superiority disappeared and he was revealed for what he was, a cowering bully, trapped in the debris of his false philosophy, without even the courage of his vices, unashamed of his yowling complaint at the slightest threat to handle him with anything but kid gloves. If only he would take his medicine like a man! It will never be forgotten that the German scholars, from the very first, rallied to the support of the militarists and became the spokesmen of German culture, which was to sweep the world, laying low everything that stood in its way. In a formal appeal to the civilized world in September, 1914, Germany's leading professors announced themselves as standing solidly behind the militarists and their aims. Thruout the war they were the apologists for all the atrocities committed by the war machine. In the Allied countries, on the other hand, the men of science were constantly working to keep the military leaders to a high idealism without which they could never accept the war. This "prostitution of scholarship and science," as Dr. Butler calls it, will remain forever as an accusation against the leaders of German thought. The record of the Allied scholars is clean. The proper attitude of the German scholars, in view of their past, is one of meek and humble silence.

The Problem of Narcotic Drug Addiction.—On repeated occasions during the past few years we have called attention to the seriousness of the problem of narcotic drug addiction. Especially have we laid emphasis on the desirability of medical men taking up the study of the pathologic and physiologic phenomena presented by the prolonged use of narcotic drugs, with the same thoroness and fidelity that they have given to other medical questions. At the hearings held last year by the Whitney Commission the need for comprehensive medical investigation was clearly shown, and the medical profession was urged to give narcotic drug addiction the attention it deserves. Thanks to the work of a few physicians, notably Dr. Bishop of New York City, it has been recognized that this condition of addiction to narcotic drugs is a true disease, with a pathology and a clinical identity as distinctive as those of any other physical disease or condition of perverted physiology. This being so, the necessity for comprehensive medical consideration and treatment of individuals thus afflicted is readily apparent. But still medical men have held themselves aloof, and with the exception of the few reputable physicians, whose sympathies and keen sense of obligation have led them to give intelligent and competent thought to the problem, and a small group of unscrupulous practitioners who have sought to enrich themselves by trading on the afflictions of drug addicts, medical men generally have devoted little or no attention to this class of patients.

That this attitude has been most unfortunate has been shown by *first*, the little success the average physician has had whenever he has tried to treat narcotic drug addiction; *second*, the erroneous views that have developed generally in the lay mind concerning the nature of drug addiction and those afflicted; *third*, the lack of any accepted plan or method of coping with either the public health or sociologic problems presented; and *finally*, the confusion and harm as well as the meager success that have resulted from attempts to control the evils of drug addiction.

The truth of the foregoing has been particularly exemplified by the efforts of the New York City Board of Health to meet the situation created by the recent arrest by the Federal authorities of a group of doc-

tors and druggists, long suspected of trafficking in narcotic drugs. The arrest of these men forced a large number of drug patients to find other places from which to obtain their supplies of narcotics, and to save these unfortunates from going to illicit and criminal dealers in narcotic drugs, the Health Commissioner opened a bureau, at which, it was announced, those in need of narcotic drugs could obtain the amounts required, and at honest prices. Realizing that the Department of Health could not undertake to supply narcotic drugs indefinitely to those addicted to their use, without attempting to cure them, a clinic was duly established, and arrangements made to provide hospital treatment for those who could be induced to take advantage of it.

Unfortunately these plans did not work out as well as those responsible for them hoped and expected. Owing to a lack of trained nurses, the Commissioner was obliged to call on a number of sociologic workers who undertook the work assigned to them with a fine spirit of kind and sympathetic service. These ladies have given freely of their time, energy and money, and too much credit cannot be accorded them for their laudable motives and faithful efforts. But while they have done much good and it would be most unfair to say that their efforts have been wasted, it must be admitted that they have been able to accomplish very little in the direction of curing drug addicts. This is not a reflection on their work, nor on the purposes of Dr. Copeland. Rather is it a reflection on the knowledge—or lack of knowledge—of all concerned of the fundamental details of the problem they sought to solve. As a consequence of such lack of knowledge, the plan was essentially handicapped and limited from the start. As a temporary expedient, or emergency means of restricting some of the evils of drug addiction, the clinic for drug addicts has probably done considerable good, and as it develops the plan may serve a useful and valuable purpose. We believe we can see a definite work which a clinic for drug addicts can perform, and a place it can fill in the elimination of certain evils.

As always happens, however, when a man attempts to accomplish something affecting the welfare or interests of a class or group of people, this movement promoted by Dr. Copeland promptly came in for all

manner of attack. No allowance or credit was made for clean, kindly motives. The papers, ever ready to "play up" a new idea, to stimulate controversy, and to foster attack and counter-attack between those for and against a new undertaking, were largely responsible for the hasty opinions formed concerning Dr. Copeland's attempt to cope with the narcotic drug problem. These and other busy bodies made the situation more and more difficult for those engaged in the enterprise. Instead of helping, the tale bearers and trouble makers created antagonisms and ill feelings in the minds of Dr. Copeland and those who could have aided him. Statements were made that were not of a character to add to the *entente cordiale*. Personalities crept in and the creditable features of the enterprise have been obscured by acrimonious discussion. Many medical men of the highest standing have been estranged by statements attributed to the Commissioner. Many have objected to the sensational publicity features of the movement, forgetful that the press was largely if not entirely to blame for this. Early in the carrying out of the movement, Dr. Copeland found that certain crooks and dishonest addicts were resorting to all manner of tricks and schemes to get large quantities of narcotics. The use of false names and visits to different doctors as well as to the clinic often enabled these people to accumulate very considerable amounts which they promptly adulterated and resold at double or quadruple prices to addicts who would not resort to such practices. Recognizing the difficulty of controlling this particular phase of the evil, Dr. Copeland came forward with suggestions for establishing the identity of addicts. The idea was even advanced of branding them with nitrate of silver, of taking their finger prints, and so on. All of these suggestions were so repugnant to the public at large that Dr. Copeland soon found that he had stirred up a veritable hornets' nest. The branding idea was dropped, but in view of his knowledge of the abuses that seemed to be inevitable he insisted that some clearly defined system of registration with identification cards, photographs of the addicts, etc., was necessary. So far as we know no system of registration and identification has been adopted as yet, and Dr. Copeland has been quoted as saying that the question is one that the State

Narcotic Drug Commission must work out.

Reviewing the events of the past month, we feel that while Dr. Copeland has made certain mistakes—probably he would be the first to admit them—on the whole he deserves real credit for (1) his effort to help solve a grave problem, (2) the emphasis he has given to the fact that drug addiction *per se* is not a form of moral delinquency or obliquity to be penalized, but that it is a disease to be intelligently studied and treated; and (3) the effort he has expended in urging honest medical men to study narcotic drug disease and treat its victims with the same fidelity and intelligence given to other diseases. We want to be big enough and fair enough in expressing any ideas we may have on this subject of drug addiction, or criticisms we may feel inclined to offer of the policies or acts of the Health Commissioner to never fail to credit him with as honest and honorable motives as we ask him to ascribe to us when we cannot accept his viewpoint.

The great fundamental need in connection with the problem of narcotic drug addiction is a better understanding of the conditions that are created in the human body by the long continued use of opium and its derivatives. A recent paper by Du Mez (*Jour. A. M. A.*, April 12, 1919) shows the diversity of scientific opinion that exists concerning the mechanism of the increased tolerance of the system for these drugs and the cause of the symptoms that follow their withdrawal. Incidentally, in his scholarly review of the literature on the subject, Du Mez shows how few American physicians have made any noteworthy contributions to the study of narcotic drug addiction. In fact, Dr. Bishop and Dr. Pettey seem to be the only American medical men whose opinions are of sufficient scientific importance to warrant serious consideration. This confirms the statement we have made in regard to the comparative indifference of physicians in this country to narcotic drug disease. It is a shame that a subject so serious in many of its aspects and so far-reaching in its possibilities for evil, has been so neglected. With the exception of the few men whose work has been referred to, the physicians of this country have shirked their responsibilities

in regard to drug addiction and its effective treatment. Conscientious medical men cannot allow this state of affairs to continue, for the control of a situation that is daily growing more menacing lies in the successful treatment and cure of the individual case. Restrictive laws and regulative measures have their place and medical men should uphold and support all rational and humane efforts in this direction. But it is thru the ability of the general practitioner to afford prompt relief to the sufferer from drug addiction, and in due course to restore him to a normal state of health, that the control and conquest of narcotic drug addiction will be accomplished. Those who have had any experience whatsoever with drug addicts know that one of the chief obstacles to the successful solution of the problem presented, is the attitude of the average addict towards treatment. If his addiction covers several years, he has usually tried all or most all of the so-called "treatments," has sojourned in many institutions, public and private, and has sought help from every good, bad or indifferent doctor he could get to take up his case. He has very vivid recollections of all he has gone thru, and as a result of his experiences, he is under no delusions as to the ability of the general practitioner to cure him. He is fearful to a marked degree of the suffering any curative treatment will force him to undergo, and highly pessimistic naturally, as to the probability of any permanent cure of his trouble. The hearing of the Whitney Commission brought out many of these facts and showed, not only the lack of confidence of drug addicts in curative treatment, but the horror these unfortunates have of being forced to undergo the suffering which, in the light of their experiences, they believe to be inseparable from any at present known treatment. It is fairly evident from the foregoing that the great majority of those who suffer from narcotic drug addiction have come to look on their condition, with all that it entails in physical distress and worry, as the lesser of two evils.

The earnest, thoughtful observer is bound, therefore, to reach the conclusion that any successful control of narcotic drug addiction must start with a better understanding of the character of the disease and more

painstaking and comprehensive methods of treatment. The duty of the medical profession is clear and we can no longer dodge the issue and be true to ourselves and our calling. The work may not be to our liking. The same may be said of other diseases we are called upon to treat. But for humanity's sake we must give our best and most faithful thought and attention to those suffering from narcotic drug addiction.

No physician has the right to plead that a fear of coming in conflict with the laws deters him from having anything to do with the treatment of drug addicts. Every physician must conform to the laws to be sure, but as we have stated on many former occasions, no honest medical man has anything to apprehend from the Federal or local authorities. As a matter of fact, the Revenue officials have performed their duties in ways that have won the unqualified respect and admiration of every honest physician with whom they have come in contact. It is very apparent from numerous facts brought to our attention that medical men may count on the utmost courtesy and consideration from the gentlemen connected with the Revenue department. The state and local authorities will doubtless follow similar methods. The physician who practices his profession honestly and with conscientious regard for the requirements of the laws regulating the use of narcotic drugs may be sure that he will have no trouble, nor suffer any interference with his legitimate work. Dr. Copeland, speaking for the local authorities, not only has given repeated assurances in this direction, but has urged every physician to give his best thought and effort to the treatment of drug addiction.

It is to be hoped that the medical profession will respond to this call, as it has to so many others in the past. Wide differences of opinion are bound to arise in regard to various phases of the question, but differences of opinion should not keep honest men from combining their strength to accomplish a result earnestly desired by all. The active cooperation of every person who is interested in the subject should be enlisted, and no stone left unturned to bring narcotic drug disease under the mastery of medical science.

Above all it should be constantly borne in mind that the narcotic drug addict is

a sick person who, in the great majority of cases, has stronger claims on our sympathy, consideration and humanity than the sufferer from many other diseases.

The Profession and the Victory Liberty Loan.

The courage and sacrifices of members of the medical profession in the Army and Navy in the war will forever be remembered. Hundreds of physicians have been awarded decorations for gallant conduct and thousands have given untiringly the best in them to allay the sufferings of soldiers and sailors. Many of these physicians are still in service. The Government is faced with the task of caring for boys incapacitated for professional or industrial work. The physicians have a job to finish and still are giving gladly of their skill and knowledge, that no youth may return to civil life without first having been accorded the best attention the profession has to offer.

To the medical profession the Victory Liberty Loan has a special appeal. Its flotation is partly necessary because of the expense to the Government to treat the sick and wounded.

When the United States entered the war, it was the last of the wealthy nations to become involved. With a great surplus of industrial and financial resources there was no necessity for external loans. The response by the people to the Government's appeal to lend money, had its immediate result. Defeat loomed for the Central Powers as the balance of money power shifted to the Allies.

Just as the successful belligerents were those that had financial resources to prosecute war; so will those nations be able to cope with the problems of reconstruction satisfactorily whose people continue to lend.

The campaign for the restoration of a country to a peacetime basis must be rigorous. The clash of arms is no more a stimulant to patriotic sacrifices. To be a rigorous campaign, those engaged must have the courage of their convictions. No member of the medical profession is ignorant of the financial burdens of the Government in maintaining large hospitals here and abroad. The Government has many other such burdens and the medical profession will help lift them by buying Liberty Notes.



THE PHYSICS OF THE CHEST AND THEIR RELATION TO DISEASES AND INJURIES OF THE THORACIC ORGANS.¹

BY

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In this introductory lecture I do not propose to deal with soft platitudes, and tell you of the wonderful achievements—in which you have all taken your part—of medicine and surgery during this war. No doubt wonderful results have been obtained in the prevention and treatment of disease and injury. This war has afforded ample scope for the application of skill and of well known discoveries, rather than the evolution of new ideas. The evolution has been more apparent in the development of destructive and preventive measures than in curative methods. All our wonder-working miracles have resulted from carrying out well recognized principles on that marvelously adaptive and self-repairing machine—the healthy human body.

Today I propose to deal with the physics of the chest, and their relation to the diseases and injuries of the thoracic organs. This is a subject equally important to the physician and the surgeon and, it seems to me, often one of vital importance to the pa-

tient. Excellent surgery in severe chest wounds was carried out by many surgeons in casualty clearing stations, whereby many lives were saved. They quickly removed as far as practicable all foreign bodies, dead tissues, blood clots and every possible source of sepsis; and then closed the chest wounds, thus restoring the function of the injured lung. During the operation, collapse of the lung was prevented as far as possible. A moderate amount of air left in the pleural cavity does not matter much, as it gets soon absorbed when the chest is closed.

In *British Medicine in the War* there is a descriptive but slovenly written article on gunshot injuries of the chest with special reference to hemothorax. There is here an almost complete failure to recognize the physical principles which are so important in such injuries. It is only from a clear appreciation of basic principles that real advancement can take place.

In my Bradshaw lecture¹ on the pleura, pleural effusion and its treatment I dealt fully with the physics of the chest, and in the course of this lecture I shall refer to many of the experiments which I then conducted. If you wish to see a good schema of the physical working of the chest I cannot do better than refer you to Sir Douglas Powell's work on diseases of the lungs. Sir Douglas Powell aptly says: "It would be impossible truly to comprehend the mani-

¹ Delivered at the Liverpool Royal Infirmary, February 4, 1919.

¹ *British Medical Journal*, November 9, 1907.

fold incidents and conditions of asthma, emphysema, pleuritic effusion and pneumothorax without a working knowledge of these statical and dynamical conditions of respiration in health."

Within the thoracic cavity there are two pleural cavities and the pericardium which in health are potential rather than real cavities: the blood-vascular cavity which is constantly varying in capacity and in the amount and distribution of its contents; the gullet, nerves and lymphatic spaces; and lastly the aerial cavity within the lungs which is the only one in health in direct communication with the atmosphere.

The intrathoracic pressure in health is usually negative, *i. e.*, less than the atmosphere, tho under varying conditions it may and often does become positive, *i. e.*, greater than the atmosphere. In carrying out the Valsalva experiment, I have often raised my intrathoracic pressure 100 mm. of mercury above that of the atmosphere. This is sufficient to shut out all blood from entering the chest, and of course if the chest were laid freely open under such conditions the lung would bulge thru the opening. However it is not likely that under such conditions the victim would be thinking of the Valsalva experiment. After a few beats the pulse disappears in all the superficial arteries, altho the vessels remain full, and it is very interesting to watch thru the X-ray screen the reduction in the size of the heart until finally it does not appear half its former size. Some have thought that this is a very risky experiment lest you should stop the heart altogether, but I can assure you that there is not the slightest danger as no one could keep up the pressure long enough to do so. Moreover only those with good vital capacity can successfully carry out this experiment.

In order to keep up a positive pressure, within the thorax while operating on the pleura, an American surgeon many years ago devised a cabinet in which he could vary the pressure. He and the patient's body were in the cabinet under negative pressure, while the patient's head was in communication with the external atmosphere. This ingenious device was too expensive and troublesome to catch on, hence it never became popular. A more simple method is to supply the patient thru a closely fitting facial apparatus with air or oxygen under moderate pressure above that of the atmosphere.

The negative pressure within the thorax is due to the elasticity of the lungs and to the slight tendency of the chest walls to recoil beyond that of their greatest capacity in inspiration. The intrapleural tension, with which I shall deal later on, is equivalent to the intrathoracic and due to the same causes. This negative pressure under normal conditions is slight, constantly varying in amount, and always sufficient to act as a respiratory pump which not only aids in the gaseous changes within the lungs but renders great assistance in carrying on the pulmonic circulation. The lungs even in expiration are in a state of elastic tension, so that during quiet respiration the respiratory pump is more or less constantly in action.

The amount of the elastic force of the lungs has been determined by connecting a mercurial manometer with the trachea in the cadaver, and then puncturing the thorax so as to allow air to enter the pleura and cause the lung to collapse. This only gives a record of 2 to 5 mm. of mercury, but this procedure does not allow for the elastic recoil of the thoracic walls, and, moreover, in the cadaver the lungs have lost a great

deal of their elasticity. Donders calculated that in health the elastic pull of the lungs in the expiratory period was 7.5 mm. of mercury. After an ordinary inspiration the negative tension is increased to 9 mm. of Hg., and after the deepest possible inspiration to 30 mm.

In Müller's experiment I have often raised the negative pressure within my thorax to over—80 mm. of Hg.

The intrathoracic pressure is constantly varying during the phases and the difference in individuals is often very great, so that experiments on the dead body are not of much value except for the establishment of general principles. So unsatisfactory did I consider these experiments that in 1907 when I was writing my Bradshaw lecture I conducted a large number of experiments on myself and healthy friends. It is needless to say that I did not carry out the experiments with mercurial manometers tied in our tracheae. Even in the cadaver the manometer has the very serious fault that with the collapse of the lung the pressure of air in the trachea is raised, which of course raises the column of mercury, but at the same time prevents further collapse of the lung.

The method which I adopted can be practiced by anyone on himself. What is required is a little intelligent practice so as to convert the mouth, the nares, the larynx, the trachea and the intrapulmonary cavity into one aerial space having as nearly as possible the same pressure thruout. When taking the pressure in this cavity during oral breathing the mouth is open and the shut nares connected with a manometer. When the pressure is taken during nasal breathing, one or both nostrils are open, and the tube of the manometer lies in the shut mouth. In these observations it is absolutely

essential that all respiratory movements be performed by the thorax alone, and that the mouth and nares be held in absolute repose. Any sucking or other movement of the mouth or nares destroys the uniformity of the cavity; of course there is a second line of obstruction at the glottis, and the variations in pressure must be greater beyond the obstruction than in the mouth and nares. This obstruction cannot readily be removed in the human subject, but with the avoidance of all excitement the obstruction is reduced to a minimum.

I give you the following observations made on myself, because I can vouch for their accuracy, and I think my lungs and thoracic walls are still fairly elastic. I know many who would give a better record, and many who would give a worse. These, however, will suffice for the object I have in view. The lower pressures were made with a water manometer, and the higher with a mercurial; as mercury is 13.6 heavier than water, it is easy to convert the readings into water or mercury as you prefer.

MILLIMETRES OF WATER.

1. Quiet oral breathing: Insp. — 5 to — 8; exp. + 3 to + 5.
2. Deep oral breathing: Insp. — 24 to — 34; exp. + 20 to + 30.
3. Quiet nasal breathing, 2 nostrils: Insp. — 10 to — 16; exp. + 6 to + 10.
4. Quiet nasal breathing, 1 nostril: Insp. — 16 to — 22; exp. + 12 to + 16.
5. Deep nasal breathing, 2 nostrils: Insp. — 40 to — 60; exp. + 30 to + 40.
6. Deep nasal breathing, 1 nostril: Insp. — 180 to — 200; exp. + 160 to + 180.

Müller experiment. After deep expiration expanding the chest with the mouth and nostrils closed, — 80 mm. of mercury.

Valsalva's experiment. After deep inspiration forcible compression of the chest with the mouth and nostrils closed, 100 mm. of mercury.

These experiments show the great variations in intrapulmonary pressure which take place, and the more active the respiratory pump, the greater the variations. For the maintenance of health it is important that this pump should be kept in good working order, as will become very apparent when we come to deal with injuries and diseases of the chest.

All these observations on the thoracic cavity are equally applicable to the healthy pleural cavities, but if you follow the teaching of most text books which deal with this subject you may infer that the elasticity of the lungs and the recoil of the chest walls were constant dragging forces trying to separate the two layers of the pleura. If such dragging were the result of these forces we ought to find some evidence of its existence. As a matter of fact there is no traction but perfect equilibrium, as the elasticity of the lungs is counterbalanced by the intrapleural tension, which is equal in force and opposite in direction, as the former is positive and the latter negative. The elasticity of the lungs tends to separate the pleural surfaces, and the intrapleural tension, which depends on the elasticity and to a much less extent on the tendency to recoil of the chest walls, holds the surface together. When the lungs are stretched in inspiration the elasticity of the lungs is increased, and so also is the intrapleural negative tension by an equal amount.

Sir Douglas Powell has shown "that in quiet inspiration there is no inertia or elastic resistance of the chest walls to be overcome, but that on the contrary the thoracic elasticity is a reserve force of appreciable power constantly tending to enlarge the thorax, and therefore acting in favor of inspiration."

In cases of great emphysema of both lungs the chest enlarges to its greatest pos-

sible extent and becomes barrel shaped, consequently this elasticity is abolished. Even without enlargement of the chest a similar condition appertains in advancing years when the costal cartilages become calcified. I have seen such calcification in a young woman of 26, induced by the chest being long fixed with a spinal support or saddle. Of course you can decalcify the costal cartilages but this is a troublesome process, in the living subject, and prevention is better than cure.

For the maintenance of a healthy chest it is absolutely essential to keep the respiratory pump in constant action, and this can only be satisfactorily done by practising thoracic rather than diaphragmatic breathing, and preventing calcification of the costal cartilages.

Regarding the intrapleural tension, which we have seen is equivalent to the intrathoracic, the external surface of the pleura is protected from the atmospheric pressure by the comparative rigidity of the chest walls and the tension of the diaphragm—it is like a membrane lining the inner surface of a metal ball, consequently the two surfaces of the pleura are pressed together, and both layers are pressed against the interior surface of the thoracic walls by the atmospheric pressure within the lungs.

The elasticity of the lungs and the elastic tension or recoil of the chest walls maintain a negative pressure within the pleura, or an intrapleural tension, equal in amount and opposite in sign or direction to that of the elasticity of the lungs, so long as there is no fluid in the pleura sufficient to overcome the elasticity, or as long as the pressure within the lungs, minus their elasticity, does not exceed the pressure of the atmosphere. When the intrapulmonary pressure exceeds that of the atmosphere the

lung elasticity remains a protective but not an active force.

If we take Donders' figures of 7.5 mm. of mercury or 102 mm. of water as equivalent to the elastic pull of the lungs during the expiratory period, then it would require a fluid pressure of 102 mm. of water all around the lung to abolish the negative tension.

In pleural effusion gravitation carries the liquid to the most dependent part of the sacs and as the pressure of a liquid is as its depth, the lower and posterior part of the lung collapses first and the non-collapsed portion is pushed upwards and to the front.

On the other hand in cases of pneumothorax the pressure is fairly equal at all points, and the pressure rarely rises so high as to cause complete collapse. When the general intrapleural tension becomes positive, that is higher than the atmosphere, the lung must collapse. On the other hand, if the intrapulmonary pressure exceeds that of the atmosphere by 102 mm. of water—a condition which exists in my chest during expiration thru one nostril—then the intrapleural negative tension is abolished during expiration, and any further rise in the intrapulmonary pressure would keep the pleural surface closely glued together so that the external layer of the pleura might be laid freely open without any risk of air entering the sac. We have seen that great intrapulmonary pressure only occurs when there is some obstruction to forcible expiration, such as using only one nostril or in Valsalva's experiment. It therefore follows that the best way to expand a collapsed lung is to increase the intrapulmonary pressure until you have restored the elasticity of the lung, and then, and not till then, increase the intrapleural negative tension.

Owing to these marvelous provisions of Nature the two lubricated pleural surfaces can move freely over one another, but any force which separates them must be greater than the atmospheric pressure in the lungs; during inspiration this is less than the external atmosphere, and during expiration rather more. Moreover the warming of the air in the lungs from 57° to 98° F. would make it expand about one-twelfth of its bulk, and this would increase the pressure in the alveoli. It thus takes at least an atmosphere (about 760 mm. of mercury) to separate the two pleural surfaces, and when the surfaces are separated by fluid it must have been secreted at a greater pressure than the atmosphere. Thus any traction from the elasticity of the lungs can have no effect in separating the two pleural surfaces, but any such effect is transferred to the walls of the thorax, seeing that there is often a difference of pressure on the two sides of the thorax. In the intact chest you never could lower the intrapulmonary pressure sufficiently to separate the two pleural surfaces, but in Müller's experiment you can lower the intrapulmonary pressure sufficiently to make its dragging effect readily felt on the walls of the thorax.

If you attach the smooth surface of a sixpence with a little vaseline to the bottom of the metal piston of a syringe the sixpence can be easily moved about over the flat surface of the piston, but even when the nozzle is down and the sixpence only suspended by the lubricant (the object of which is to get rid of the air between the piston and the sixpence), you can draw the piston up to the top of the syringe with the nozzle blocked, and thus make a large, tho imperfect, vacuum without detaching the sixpence. You can thus see that the elasticity of the lungs and the atmospheric

pressure are Nature's method for keeping the two lubricated surfaces together and enabling them to move freely over one another, and not for separating them as is often supposed.

A very distinguished surgeon and Fellow of the Royal Society has asserted that the force holding the pleural surfaces together is molecular cohesion, and has nothing whatever to do with atmospheric pressure. It will not be difficult to show that this assertion—of which I would take no notice were it made by a less exalted personage—evinces a lack of knowledge of molecular cohesion and of the force of atmospheric pressure. Fellows of the Royal Society are not, as a rule, more ignorant than other people, but when you find them tripping, as you occasionally do, their delinquencies become more apparent, because less expected. The first essential for molecular cohesion is that the molecules must be in contact, and it is absolutely impossible for such contact to take place between two surfaces which are separated by a thin layer of fluid even if that layer be only a ten thousandth part of an inch in thickness. Chemists and physicists may tell us that molecules are free to move about among one another, but in solid bodies they cannot move very far and contact is absolutely necessary for cohesion. In the case of the pleura the surfaces glide over one another very easily. The only difficulty is in the separation of the surfaces, but if there were molecular cohesion it would be much more easy to tear the membrane than to move the surfaces.

Professor Donnan once told me that the surfaces of two pieces of steel have been cut so true that when they were brought into perfect apposition a much greater force than would be accounted for by atmospheric pressure was required to separate them.

This is molecular cohesion; nothing like it occurs between any surfaces in the body. If you had molecular cohesion over such a large surface as the hip joint, the junction would be so perfect that it would be much easier to smash the shaft than move the head of the bone the hundredth part of an inch. This at once disposes of molecular cohesion as the force which holds the pleural surfaces together, and it is unnecessary to further multiply arguments.

Another force which some have imagined to play an important part in this direction is surface tension; this is a force which has engaged a great deal of attention in recent years but in this connection it proves a very insignificant force.

I have made many experiments on this subject, but the following should suffice: The surface tension of a serous effusion having a specific gravity 1025 will support about 6 grains to the square inch; a transudate of a sp. gr. of 1010 will support about 3 grains to the square inch, while the normal thin serous fluid of the pleural cavity may be an excellent lubricating material, its surface tension will not support more than 2 grains to the square inch; therefore as a force in holding the two pleural surfaces together it is scarcely worth computing.

I now wish to show you some experiments of the force of the atmosphere in holding surfaces together. I have shown you the experiment with the sixpence attached with a little vaseline to the bottom of a metal piston of a syringe; much heavier metals can be suspended, but when the influence of gravity exceeds the atmospheric pressure plus the surface tension in the partial vacuum the weight drops off. In the open air very heavy weights such as 56 lbs. can be suspended from a smooth book shelf

with only a thin layer of vaseline intervening. No one could imagine that there was any molecular cohesion between the metal weight and the polished book-shelf, or that the surface tension of vaseline would support 56 lbs. On the other hand the atmospheric pressure is about 15 lbs. to the square inch, and the attached surface of the metal is about 36 square inches, therefore the atmosphere would support a much greater weight with the same surface. The use of the vaseline is to prevent the air entering between the metal and the board; it allows the board to be moved freely over the metal, but so long as no air enters between the surfaces when the board is raised the weight follows it.

In the intact chest no air can get between the chest wall and the external layer of the pleura, consequently the two layers of the pleura are pressed together by the atmospheric pressure within the lungs. Even in Müller's experiment there is a pressure of over 13 lbs. to the square inch pressing the two layers together.

In most conditions it takes more than the pressure of an atmosphere to separate them, it is therefore no wonder that they often remain glued together even in punctured wounds of the lung.

It is very easy to raise the intrapulmonary pressure above that of the atmosphere, and under such conditions there would be a tendency to bulging of the lung thru the external opening rather than separation of the pleural layers.

Sir John Rose Bradford says: "Hemothorax is the most common result of a chest wound; both pneumohemothorax and pneumothorax are relatively rare, and in a series of 328 cases of gunshot wounds of the chest only 8 cases of the former and 4 cases of the latter were observed." This statement

gives no indication of the relative number of cases of simple hemothorax. In dealing with infection he says: "In a series of 450 cases observed by Bradford and Elliott, infection was present in 117—that is to say, roughly, in 25 per cent.; and Captain H. Henry, who carried out the bacteriologic investigation, found that lung organisms, such as the *pneumococcus*, *B. influenza* and *M. tetragenous*, were present in some 20 per cent. of the infected cases, and that in the remaining 80 per cent. *streptococci*, *staphylococci* and anaerobic gas-forming bacilli were found."

Whatever be the relative proportion of cases of hemothorax in wounds of the chest, we will now deal with the physics of the condition when it exists. In the vast majority of cases the hemorrhage comes from the lungs and naturally gravitates to the most dependent part of the pleural cavity, and this pressure first causes collapse of the lower part of the lung. If the wound be low in the chest the collapse of the wounded portion of the lung may quickly arrest the hemorrhage so that the negative tension is not abolished, but even increased on account of the collapsed lung leaving a potential or actual cavity which is filled up by the effused blood, elevation of the diaphragm, collapse of the lower part of the chest walls and emphysematous expansion of the non-collapsed portion of the lung. The negative pressure may be so great as to draw over the mediastinum—including the heart—to the affected side. When the wound is in the upper lobe the hemorrhage is likely to continue until the intrapleural tension becomes positive and you get collapse of the greater portion of the lung. When the external wound closes, as it is as a rule quickly does in cases of gunshot wounds, and the wounded lung collapses, no

more blood or air can get into the pleural sac, and the air is quickly absorbed so the negative tension is maintained or even increased. You can easily form an estimate of the amount of blood effused by the evidence of the tension, negative or otherwise. When the diaphragm is very high and immobile, chest flattened in the lower part, you readily perceive that the amount of blood is slight and can be left alone if there be no evidence of infection.

In my Bradshaw lecture delivered in 1907, I rather forestalled many of the observations on the chest wounds in the present war. *Inter alia*, I said: "With care atelectasis is easily differentiated from pleural effusion even when the dull percussion is absolute and the respiratory and vocal phenomena absent. In atelectasis of one lung the affected side is smaller than the other, the ribs are closer together and more sloping, the costal angle more acute, the diaphragm raised, the dull percussion barely reaches the middle line in front, while the sound lung passes beyond the mesial line, the heart is either not displaced or slightly pushed over by the sound lung."

In pleurisy there is no sudden arrest of the effusion as in hemothorax but it gradually accumulates and as the pressure becomes positive you get collapse from below upwards, but there can be no general collapse of the lung until the intrapleural tension becomes sufficiently positive to overcome the intrapulmonary pressure minus the elasticity of the lung. Even before there is any general positive pressure, if there be a difference of pressure in the two pleurae the heart may be pushed or drawn over to the side where the negative tension is the greatest. As the effusion increases the tension becomes more and more positive, and eventually there is not only complete col-

lapse of the lung, but the heart and neighboring organs get much displaced, and the diaphragm pushed down so as to depress the abdominal organs. If you withdraw the effusion and substitute fluid air for the liquid you can now easily regulate the pressure, which then becomes equal all around the lung and not according to the depth of the liquid. If you are careful to leave a pressure in the pleura less than that of the atmosphere in the intrapulmonary air sacs you encourage the gradual expansion of the lung and the restoration of its elasticity. On the contrary in hemothorax the tension rarely, if ever, becomes positive hence you get sinking in of the chest walls and a rise in the diaphragm which becomes fixed in its elevated position. Owing to the complete collapse of the lower lobe there is no intrapulmonary pressure to assist in the expansion of the collapsed lobe. In empyema the pressure is frequently higher than in serous effusion, and when the tension is very high there is not only complete collapse of the lung but you may have the pulsations of the heart communicated to the liquid, giving rise to a pulsating empyema.

The lung is kept expanded by the negative tension within the pleura, and the greater and more active the inspiration the greater the negative tension, but not unfrequently, especially in many wasting diseases where the demand for oxygen is not great, this negative pressure may fall to a very low ebb or may disappear, especially at the bases and posterior surfaces of one or both lungs, the inspiratory movements being confined to the upper part of the thorax. In such cases partial atelectasis is of one or both lungs, or almost complete atelectasis of the lung of the side on which the patient has mostly lain is not at all uncommon. Massive collapse mostly occurs

in the lower lobes, and is especially apt to occur in young flat-chested individuals with pliant chest walls.

I have seen a greater number of these cases than has fallen to the lot of most men for the simple reason that I have been on the lookout for them for many years. These cases are frequently overlooked because there is usually a negation of subjective chest symptoms, and so the lung is often allowed to remain so long collapsed that it never completely expands, and afterwards the deficient expansion of one side of the chest is ascribed to some old pleural effusion of which the patient has no recollection. When these cases are discovered in the early stages they are frequently mistaken for pleural effusion—an error which is apt to remain uncorrected if an exploring needle be not inserted into the chest. The careful physician should avoid exploratory operation until all other methods of diagnosis have failed him. In massive collapse the signs which I have before pointed out should clear up the case. I have seen cases where after tapping with negative results the physician in charge had diagnosed sarcoma of the lung, unresolved pneumonia, etc. My opinion that the conditions were simply due to atelectasis which could be removed by respiratory gymnastics was at first received with credulity, but the subsequent improvement in the cases, and the non-fulfilment of the grave prognostications proved the correctness of my views.

In the early stages the diagnosis is at once cleared up by the excitation of the lung reflexes of Albert Abrams. If you rub the affected side briskly with the hand the collapsed lobe expands, the percussion note clears, you can hear the air entering the alveoli accompanied with some dry fine

crepitations. If you keep up this friction for a length of time the collapsed lobe may almost attain its former dimensions, and the edges of the enlarging lung find their way between the arch of the diaphragm and the thoracic walls. When the lobe is expanded if you strike the chest firmly several times with the ulnar side of the closed fist the lobe collapses again.

The lung reflexes are largely responsible for the contralateral collapse which frequently occurs in gunshot wounds or other injuries of the chest. These lung reflexes also differentiate collapse from hypostatic congestion. In these cases respiratory gymnastics should be practiced and the patient told to frequently change his position, and to lie on the sound side.

In advanced cases of mitral stenosis collapse of numerous lobules on the posterior surface of both lungs is a matter of frequent occurrence. In these cases the oxygenating surface is greater than that demanded by the small quantity of blood passing thru the lungs. These cases usually pass on to more or less permanent collapse with brown induration of the lungs. Apart from cases associated with mitral stenosis, atelectasis, partial or complete, when early recognized is very amenable to treatment; but when long neglected permanent damage to the lung results.

I saw such a neglected case ten years ago where I effected considerable improvement. He has since carried on hard laborious work without further medical advice until he consulted me a few days ago. There is still considerable deformity, but his vital capacity is sufficient.

Fluid in the pleura, as we have before seen, lessens and finally abolishes the intrapleural negative tension, but so long as it is not sufficient to cause collapse of the

lung and displacement of other organs, often gets rapidly absorbed after the febrile stage has passed without any special medication. The effusion is a natural process which, if it continue till after the inflammation has subsided, lessens the risk of pleuritic adhesions; it also keeps the more or less collapsed lung quiet, which is very desirable if there be any active tuberculosis in the lung. A very large proportion of cases of pleurisy are tuberculous, and the early withdrawal of the fluid causes vascular turgescence of the lung, often hastens the dissemination of the tubercle bacilli, and kills the patient. Before I began the substitution of one fluid for another by the introduction of filtered air into the pleural cavity, I was much more chary of early tapping than I am at present. I can now remove the whole of the effusion, even in tuberculous cases, at an early stage with perfect impunity.

A considerable number of deaths have followed the complete withdrawal of the effusion in elderly persons with rigid chest walls. The danger in such cases arises from establishing too great a negative pressure which leads to hyperemia and edema of both lungs; this can be obviated by the introduction of air. I prefer air to oxygen as nitrogen is not quickly absorbed.

When you remove say three to five pints of serous fluid from a pleural sac there is a potential or actual cavity which cannot be easily filled. Such a cavity cannot exist in the human body with a surrounding atmospheric pressure of 15 lbs. to the square inch. It is filled by: (a) the carbonic acid gas which escapes from the serous fluid as the pressure is lowered; (b) by the more or less expansion of the collapsed lung; (c) by the return of the mediastinal contents, which were pushed to one side, and the fur-

ther expansion of the other lung; (d) by increased quantity of blood in the chest; (e) by elevation of the diaphragm; and (f) by falling in of the chest wall. All these events may not suffice to fill the cavity if the amount of fluid withdrawn has been very great and the lung so collapsed and bound down that it cannot expand. The great danger arises from the collateral congestion and edema not only of the expanding lung but also of the healthy one.

The best way to lessen this extreme negative pressure is to substitute filtered air for the fluid withdrawn. I recommend the complete withdrawal of the effusion in all cases where tapping is considered necessary, but before any great negative pressure is established, and before the patient feels any discomfort, I stop the siphon and introduce about an equal quantity of air to the amount of fluid which I have withdrawn. I then reestablish the siphon and complete the removal of the effusion. When all the liquid is withdrawn I inject 4 cm. of adrenalin solution (1 to 1000) diluted with 8 or 10 c. cm. of sterile normal saline; and, if I think it necessary, I introduce more sterile air so as to make the total amount equal to half or three-fourths of the bulk of the fluid removed; the larger quantity of air is introduced in tuberculous cases. By this method the patient suffers no discomfort except from the thrust of the trocar, and runs no risk. I prefer the siphon to the aspirator because you can readily regulate the force of the suction, and as your tube can only reach to a receptacle on the floor practically your suction never exceeds 1 pound to the square inch; this force is greatly exceeded by the aspirator, and the greater the negative pressure the greater the risk of hyperemia and edema.

When introducing the air into the pleura it may be an advantage to place a manometer in the circuit so as to obviate any risk of the production of a positive pressure in the pleura, but when the operation is intelligently carried out such refinements are scarcely necessary.

The pleura is a very vascular membrane, the blood vessels of which belong to the systemic system, and are innervated by the sympathetic, hence the adrenalin solution causes them to contract and lessens any further secretion. When the use of adrenalin is supplemented by the introduction of air the negative pressure is lessened or abolished but rarely becomes so positive as to cause much collapse of the lung; as the air gets absorbed the lung gradually expands and the negative pressure is reestablished. By this combined method you can operate easily in any case, even during the febrile stage (tho as a rule I prefer to let that stage pass), and under no circumstances should you allow the fluid to accumulate to such an extent as to completely collapse the lung you should tap before the patient suffers any respiratory distress. By removal of the effusion you often remove numerous microorganisms, and by the introduction of sterile air you substitute a light innocuous fluid for a heavy deleterious one. I now show you my apparatus for carrying out this procedure. The history of the introduction of air into the pleural cavity, in which I took a prominent part, is recorded in my Bradshaw lecture.

I rather hesitate to say anything about drugs in this lecture, but as surgeons as a rule know very little about physic and less about physics, while every fool in the country, from which category surgeons are not exempt, considers himself a physician I may venture on a few observations which

may contribute to the restoration of the function of the damaged lung. There is one drug, common salt, which you should as far as possible eliminate from the diet, especially in cases of sero-fibrinous pleurisy on account of its high asmotic equivalent. When there is a large quantity of effused fibrin, such as occurs in pneumococcal pleurisy, dacalculifying agents such as lemons, citric acid, the citrates of ammonium, potassium and sodium may be used. However it will be well to reserve their use until the acute stage of the accompanying pneumonia has passed, as the lime salts are the most important drugs in the treatment of that disease.

In order to hasten the solution and absorption of the effused fibrin there is no objection to the introduction of a small amount of trypsin into the pleural cavity. The injection of a few ounces of sterile liquid paraffin, which has a lower specific gravity but a higher surface tension than the normal lubricating fluid, lessens the liability to pleural adhesions.

When the pleurisy is practically cured you will find plenty of scope for ingenuity in trying to restore the function of the lung to its pristine vigor. For such purposes you can study the conditions of the intrapulmonary pressure in the various phases of respiration, and there are numerous respiratory exercises which can be brought into play.

Empyema.—This is one of those numerous diseases which the surgeons have taken under their own special care, but have done very little to advance its treatment. In the case of a child with elastic chest walls you could not easily mismanage a case of empyema. A considerable number of cases get well in spite of the treatment to which they are subjected. When a surgeon has to deal

with a purulent effusion in the chest, about the only idea which he can get into his head is free drainage, and forthwith out comes a piece of rib and in goes a large drainage tube; he expects it to suck up the liquid from the most to perhaps the least dependent part of the cavity, utterly reckless as to whether the collapsed lung ever expands or not.

In empyema the lung is always more or less collapsed and in any operation the object should be to avoid any further collapse and to make the lung expand so as to drive the purulent fluid out of the chest. A local anesthetic should be used, but if, in any particular case, a general anesthetic is deemed necessary the anesthesia should be very light, as pointed out by Mr. Aryher Edmunds, so as not to abolish the pleuro-laryngeal reflex, and thus the vocal cords are enabled to play their part in maintaining the pressure within the lungs.

A free incision should be made in a very dependent spot, about the eighth intercostal space, in a line with the lower angle of the scapula. If the ribs be close together it would be well to take out a long piece of one rib and then make a very free incision into the pleura. An assistant should firmly compress the side so as to drive the purulent matter out and allow as little air as possible to enter the pleura. A strip of gauze may be inserted into the wound to prevent it closing, but no tube should be introduced; then apply a large piece of sterile oiled silk over the wound to act as a valve, so as to allow the discharge to escape and no air to enter. Large aseptic dressings should be applied over the valve, the affected side may be well strapped to prevent movement. The patient should lie on or towards the affected side so as to lessen movement and encourage drainage; he

should avoid deep inspirations, and make deep nasal exhalations, so as to expand the affected lung and drive the purulent matter out of the pleural cavity. He should be instructed to inspire thru the mouth and expire thru the nose. He should also frequently practice the Valsalva method, or blow thru a small tube. If the pus be very offensive or not draining well, the patient can be treated in a continuous saline bath and then no dressings will be required, not unfrequently the surgical wound becomes infected and then a previous afebrile temperature becomes very febrile; the surgeon often ascribes this to the retention of matter in the chest, oblivious of the dry condition of the wound which he inflicted, the wound is enlarged or a counter opening made and in goes a large tube; the surgeon, like a plumber, making a further job for himself. The best treatment for such cases is to keep the patient in a warm saline bath for four or five hours daily, as long as required, during the febrile period which is usually the afternoon.

In empyema the pus is usually fairly liquid, is neutral or may be even slightly acid in reaction, contains some peptone and a ferment which seems to have the power of digesting fibrin, and thus the lung is not likely to be irreparably collapsed or bound down by adhesions; there is, therefore, a good chance of success if the operation be adopted early, and the after-treatment be intelligently carried out.

An appropriate vaccine is often very useful. Tuberculous cases are the most troublesome, and usually when the fluid becomes purulent there is a mixed infection. Cases of pyopneumothorax are best treated by drawing off the liquid and filling the cavity with sterile air or oxygen. When the empyema is located the surgeon may remove

a piece of rib and insert a drainage tube if he choose; he cannot do much harm. Unfortunately, Estlander's operation is often necessary, partly owing to early mismanagement of the case. There should be some effort to place the treatment of this disease on a more scientific basis than that on which it has hitherto rested.

Pneumothorax.—When the air enters the pleural cavity from the lung the exit is usually not so free as the inlet, so the intrapleural tension both in inspiration and expiration becomes positive; then the lung collapses, and does not get a chance of expanding again unless the perforation heals and the air becomes absorbed. In these cases if there be much respiratory distress part of the air should be withdrawn.

Visual Hernia into the Thoracic Cavity.—In case of hernia of the whole stomach into the left thoracic cavity, Captain Arthur Evans made an incision into the diaphragm, and the patient made an uninterrupted recovery. This shows what good surgery can accomplish.

Emphysema.—In emphysema the chest becomes barrel-shaped (except in the senile type), and the costal cartilages rigid; so the chest walls assume their largest possible dimensions, the lungs lose their elasticity, the recoil of the chest walls and the intrapleura negative tension disappear. Consequently the only part of the respiratory pump which remains in action is the dia-phragm, which is a very poor affair compared with the movement of the pliant chest walls; thus the vital capacity is much diminished. If the pump action be completely abolished the blood can only enter the chest under positive pressure. The veins of the neck remain full and tense even in inspiration, and the right side of the heart does not receive any respiratory assistance.

Recently I drew the attention of a medical man to the fulness of the veins of his neck and wished to know what had become of the negative pressure within his thorax. He seemed to think, tho he was too polite to say, that I did not know what I was talking about, as he never felt better in his life and the swelling must have been due to a tight collar. Of course I was glad to hear it, and if he were satisfied there was no reason why I should be otherwise. It was no business of mine, but if the veins of my neck were prominent I would quickly get rid of tight collars, and as soon as possible I would reestablish the negative pressure within my thorax even if it should cost me a visit to the Alps.

If you wish to retain a healthy chest, you must maintain a good vital capacity for which purpose pliant chest walls are essential; you must not allow any calcification of your costal cartilages to take place. In the respiratory pump action which maintains the vital capacity the movements of the chest walls are equivalent to more than double that of the diaphragm. Everyone should be taught chest breathing and leave the diaphragm to look after itself; it is an adventitious agent which will naturally come into play when required. In emphysema the difficulty is not so much in getting air into the chest as in driving it out, hence an elastic band worn moderately tight around the chest assists expiration and gives more work on inspiration which helps to re-establish a negative pressure within the chest.

Asthma.—In asthma there is a temporary emphysema of the air cells, and even violent expiratory efforts cannot expel the air thru the contracted bronchi, but once the spasm is relaxed the normal function of the lungs is restored. In these cases there

is always an excess of lime in the system, hence decalcifying agents should be used, and the intake in the diet diminished.

Bronchitis.—Bronchitis is usually the forerunner of emphysema, the vital capacity diminished, and the respiratory pump thrown out of gear. A dry atmosphere to get rid of the moisture in the lungs is essential, alkaline treatment is necessary while decalcifying agents are only requisite in the dry spasmodic type. When the expectoration is profuse, lime, adrenalin and atropine are beneficial.

Pneumonia.—On the affected side the movements are diminished, the negative pressure is lessened and gradually becomes positive, but not to such an extent as to cause displacement of the heart and other organs. At first the loss of elasticity of the lung may be greater than that of the chest expansion so that the intercostal spaces are depressed in inspiration. However the affected lung may become so large as to abolish the recoil of the chest wall and the lung be marked by the pressure of the ribs.

When the lower lobe only is affected it may become so enlarged as to compress the upper lobe to half its size, and depress the diaphragm. The blood is often badly oxygenated, but this is rarely, if ever, a cause of death, while on the other hand the greater percentage of carbonic acid in the blood stimulates the respiratory center and keeps up the pump action.

Influenza.—Some of the most prominent features of the late epidemic of influenza, especially in those cases accompanied by bronchopneumonia, were extreme nervous prostration, loss of the knee jerks and a paretic condition of the chest walls so that the patients became very livid without much respiratory distress. The best results were attained by respiratory stimu-

lants such as strychnine and atropine, and the lime salts.

Laryngeal Diphtheria and Croup.—

When there is any acute obstruction to the entrance of air to the chest the negative pressure becomes so great that the pliant chest walls are driven in, the diaphragm raised, and the lower end of the sternum caved in.

Adenoids.—In this case the obstruction is a slowly increasing process which leads to defective development of the chest, high palate and narrow throat.

Whooping Cough.—This resembles the Valsalva experiment carried out in spasmodic efforts, and when the spasm is over the long crowing inspiration to fill the expanding chest represents a modified Müller's experiment. The result is that the lower part of the chest is pulled in during the expiratory phase and driven in during inspiration—in the pliant chest walls of children we may thus get permanent deformity.

Mediastinitis.—In this condition we get a modified Müller's experiment, with a diminution in the volume of the pulse at the wrist during inspiration—the so-called pulsus paradoxus. When the chest is expanding the adherent lungs cannot fill up the vacant space in the mediastinum, hence it is filled by the blood being retained in the great veins, the right side of the heart and the lungs, and the amount passing thru the left side of the heart is temporarily diminished. I dealt very fully with this subject in the *British Medical Journal* of April 20, 1907.

Gonorrhea.—The use of astringents on acute gonorrhea and discharge of cases when symptoms disappear are responsible for the infection of thousands of women.—Hall, *So. Practitioner*.

CHOREA.

BY

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In the beginning permit me to state my objection to the characterization usually given to the common form of the affection which is best known as chorea, namely, that of "infectious chorea."

It is true that in a limited number of cases in which death has quickly supervened upon an attack in which choreiform symptoms have been conspicuous, certain organisms have been observed, but these have been of different kinds in different cases and it cannot be said that any specific form or any definite group of organisms of a bacterial nature is characteristic of the various cases.

Moreover, the rapid course and speedy lethal termination of these cases, which have usually resulted fatally within a week or ten days, separate them widely from the typical form of chorea.

It is much more probable that some so far undefined affections are accompanied by choreiform manifestations than that these suddenly and fatally terminating cases should be representatives of typical cases of chorea.

This remark may also apply perhaps to such manifestations as those of chorea gravidarum and some other special afflictions characterized by choreic movements.

So considerable a proportion of acute cases of sickness is of bacterial origin that there is an unwarranted tendency to assume that every case of disturbed nervous function is a case of microbic infection.

In any case, until an infectious origin is specifically determined for the common

form of chorea, the term "infectious chorea" should be abandoned.

Also, in respect to the designation of "chorea minor" and "chorea major" there are objections, for in fact the principal difference between one and the other is the difference in severity between attacks of the same affection.

The objection holds good in respect to the characterization of the most ordinary form of chorea as "acute chorea," for in many cases the affection continues for an indefinite time and is as "acute" after two or three years as after a few days.

It is therefore more satisfactory to speak of chorea as a general term and to characterize the various manifestations as varieties and not as species of the disease.

Let us consider some of the principal features of chorea.

1. There is always a disturbance of motility.

2. The affection chiefly attacks children between the ages of five and fifteen, tho it may continue for many years or for a lifetime.

3. The motile disturbances are spontaneous or of coordination.

4. These motile disturbances are most commonly manifested either as movements of the upper extremities or of the head or face.

Disturbances in the severe cases extend to the trunk and to the lower extremities. In sleep the movements are generally, not always, quieted. In some cases the motile affection is confined to one side of the body. Loss of muscular power sometimes develops and speech is sometimes affected. The patient is, in some instances, affected mentally even to delirium, delusions or attacks of mania. Other complications are associated with the functions of nutrition.

What interpretation can we place upon these phenomena?

They constitute a series of manifestations which arise from a definite cause or from several causes.

In the first place it will be observed that the parts of the body usually first affected and principally involved are the head, face and superior extremities. It is true that in many cases the lower extremities are involved and in exceptional instances mental affections are added to the motile irregularities, but these are manifestations usually of a stage in which a certain degree of progress has occurred. It is to be remembered that the attacks commence very early in life.

A very important consideration is that the initial phenomena are located in the head and in the upper extremities.

Another very important consideration is that, in the majority of cases, the duration of the disease is limited to a few weeks, tho individual cases continue indefinitely. These last constitute a most unfortunate class of sufferers.

A bacterial cause would, according to usual experience, scarcely account for the conditions mentioned.

Some other originating influence should be found.

In the search for a predisposing cause I suggest the following hypothesis:

The principal predisposing cause of the typical form of chorea is found in the unsymmetrical development of different parts of the cerebrum and an absence of exact conformity of growth of the cranium, especially at its anterior portion, inducing a slight pressure upon the cerebrum at a point or at points controlling the movements which are involved in the choreic disturbances.

Let us examine the evidence which leads to this conclusion.

It is known that during the period of growth of the body, the period during which attacks usually occur, there are noticeable irregularities in the development of the cerebrum, depending upon the comparative use of individual parts of the body.

The location of the brain center for the adjustments of the eyes is situated in the anterior part of the frontal lobe of each cerebral hemisphere, and behind this are situated the centers for the motility of the face, arms and hands with, a little further removed, the centers for other muscle groups.

Many affections may have a predisposing and an immediate cause. The first may be insufficient without the other to induce the full manifestations of the disease.

This, I assume, is the case in respect to chorea.

Many years ago I affirmed that chorea is the result of faulty adjustment of the eyes. Altho there was much to justify the proposition I would, at the present time, modify it to conform to observations of a later date. Indeed I would place another condition in the front line without surrendering the conception of the great influence of the adjustments of the eyes in the etiology of the disease. The practical results of treatment directed to the correction of the defects of such adjustments have abundantly confirmed the proposition; yet I would assign, with my present information, the position of immediate cause to the faulty adjustment of the eyes with probably a share in the predisposing cause of the disease.

Examining first the initial or predisposing cause, we may well consider an enlargement of the frontal zone of the cerebrum, which may result from excess of efforts by the ad-

justing apparatus of the eyes, a cause of pressure of the cerebrum against the wall of the cranium induced by the more rapid development of the former than of the latter; it might readily give rise to movements of the face, arms and other portions of the upper parts of the body, depending upon the degree of pressure of such an advance in the development of the frontal lobe as has been assumed, and the slight pressure could well stimulate irregular muscular responses.

To the doubt which might be expressed whether such excess of function would induce the increase in volume of the anterior lobe we may adduce as an example in illustration of such an increase in the development of the neighboring region of the cerebrum the anterior lateral portion of the left hemisphere of the cerebrum as a result of the greater use of the right hand over that of the left.

It is true that the bony walls of the cranium usually keep pace with the growth of their contained material and it is also true that by far the greater number of children are not affected by any such supposed pressure as I have suggested.

Nevertheless, a combination of circumstances might well induce the indications of pressure.

For the completion of the vicious circle we may well suppose that the ocular conditions which I have assumed as the immediate cause, the state of refraction or of adjustments of the eye, will add to the state of local pressure.

Especially is this to be presumed since the center for the movements of the eyes is situated in the anterior lobe of the cerebrum and a condition of refraction or of adjustment which demands an increase in the nervous efforts to effect their object

may and does induce an increase in the growth of that part of the cerebrum.

This may, in addition to the increase in the development of some part of the cerebrum as the result of other causes, aid in the process of an unequal development between the skull and its enclosure.

Beyond the contingency of an increase in the growth of parts of the brain, there is to be considered a state of a greater than ordinary hyperemia of the part of the cerebrum controlling the adjustments of the eyes, thus intensifying the effect of the slight pressure from unequal growth.

This view is strengthened when we consider that in cases of hypermetropia, which is a prominent feature in the majority of subjects of chorea, the frontal region of the cranium is prominent, the orbits are short and, in case of the unequal development of the two sides of the cerebrum, there is likely to be the condition known as declination, which in many cases is a cause of much irritation and of fatigue to the eyes and their surroundings.

Thus there is a combination of slight pressure upon the anterior portion of the cerebrum with a condition of irritation of that portion of the brain.

Perhaps neither of these conditions acting alone would induce the phenomena of chorea, which is sometimes intermittent for days together. In the very common chronic form of chorea called *tic* there is evidently a spasmodic effort to correct faulty adjustments of the eyes.

Thus we have all the conditions necessary for the origin and development of choreic movements in slight pressure upon certain parts of the brain with a source of nervous disturbance in the region of the eyes.

The development of the cranium is so

uniformly in proportion to its contents that, ordinarily, there is no manifestation of irregular motile actions.

This is the case even when there is irritation from refractive or irregular muscular action. But when there is combined disparity between the development of the cranium and cerebrum with irritation from ocular adjustments there is sufficient provocation to induce the phenomena of chorea.

We are then led to inquire why the pressure effects should continue only, as a rule, for a limited time and why relief to the adjustments of the eyes should shorten the process of the affection?

To the first question we might legitimately assume that the difference between the growth of the cephalic and the cranial expansions would adjust themselves, as a rule, after a few weeks. On the other hand, a relief to the adjustments of the eyes serves as an amelioration to the pressure which is the cause of the trouble.

The considerations which I have presented would account for the peculiarities of disturbance in the motile functions, for the mental manifestations, for the difference in the length of duration of the various cases and for the relief afforded by treatment of the eyes.

The rational treatment of chorea would, in view of this hypothesis, consist principally of measures directed to the correction of the anomalous conditions of the eyes, since the development of the cerebrum cannot so well be controlled and the treatment of the unfavorable states of the eyes is usually practicable.

Of course, when it can be assumed that the greater use of the right (or left) hand predisposes to the pressure upon one or other part of the cerebrum, as the case may be, advantage may follow a change in

the habitual use of the hands. Other methods tending to an equalization of the growth of the brain may suggest themselves, but these indications are obscure.

A majority of cases will recover under almost any form of treatment but even in any case adequate treatment directed to the ocular conditions will materially hasten a return to the normal condition, while in that unfortunate proportion of cases, in which the motile disturbances persist, the attention to the eyes becomes absolutely necessary.

The simplest indications are directed to the refraction but, unfortunately, for these simple indications in the more persistent cases, the disturbing immediate cause is often found in the condition known as declination.

It is, in these persistent cases, often absolutely necessary to correct this condition and, as a rule, these most obstinate forms of cases of common chorea will yield to such correction.

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PULMONARY TUBERCULOSIS CASES TREATED WITH ULTRAVIOLET LIGHT.

(A Casuistic Contribution Second Paper)

BY

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Encouraged by previous observations on the therapeutic action of highfrequency waves on tubercular patients,¹ a trial with a less powerful machine applied to medium or even far advanced cases of that disease was at least of interest. In the case of giving treatments the question arises as to

the expense of the equipment, the accessibility of the mode of treatment to the general practitioner and to the patient as well. The present portable highfrequency outfits, available for the practitioner, furnish enough energy and current; doubt only prevails whether this energy produced is sufficient to benefit the patient. Experimental work must necessarily support the clinical results and many cases must be subjected to careful examination and supervision before any definite conclusions can be drawn. The present study shall not attempt a definite conclusion, as a contributory addition to the papers of other authors, however it appears of practical and scientific interest.

The apparatus attached to an A. C. current with 110 volts tension, and connected with one flat low vacuum tube, the latter was applied from 2-5 minutes upon the skin of the patient, so that all affected parts of the lungs would be placed under the action of the current so introduced. The spark gap at the beginning of the treatment did not exceed one-half inch, only later, when the patient had become accustomed to the procedure, the distance of the two terminals was gradually increased until the appearance of a slight spark on the point of contact with the skin.

In a former paper² of mine I reported on the radioscopic measurements of air thru which the highfrequency current was allowed to pass for one minute. The curve so obtained during an observation period of one-half hour shows that there is a radiation present which, besides the alpha rays, contains other rays of deeper penetration. Today it is not possible to enter upon a discussion of the various effects produced by ultraviolet light. From numerous papers on the subject however, we must admit that according to the dose of energy applied, we

exert either a stimulating or an inhibitory effect by such means.^{3, 4}

The following cases, while under ambulatory treatment, were subjected to highfrequency application and in giving the case history the physical findings will be found in abstract.

Case 1.—Mr. B. Age 30, married, railroad employee, myasthenia for the past eight months, subject to frequent colds, tonsillitis, pains between the shoulder blades, anorexia, general weakness and slight cough. The patient was referred to me by a medical friend, whose examination aroused the suspicion of a tubercular involvement. The physical findings on this case were as follows:

Right Apex, ant.—Marked impaired percussion sound over the apex as far as the first interspace, with granular inspiration, harsh tubular expiration, many moist mucous rales and bronchophony.

Posteriorly.—Impaired percussion sound extending from the apex to the sixth spinous process, impaired resistance on palpatory percussion, granular inspiration, harsh prolonged tubular expiration, many crepitant rales, extending to the fifth interspinous process.

Left Apex, ant.—Marked retarded respiratory expansion and impaired percussion sound, extending to the upper border of the second rib, granular inspiration and prolonged, extending to the first interspace, abundant mucous and crepitant rales, with bronchophony extending to the same level.

Posteriorly.—Marked retraction of the left apex, impaired percussion note from apex to sixth interspinous notch, granular inspiration, harsh, markedly prolonged expiration, diffuse crepitant rales and bronchophony extending from apex to sixth spinous dorsal process.

These findings expressed in shorter and abbreviated terms, as suggested in one of my former papers, (5) read as follows:

R. L. Ap. ant.—P.-3 a. f. a. 1 Isp.

Insp. gr. Exp. h. t.

R1. + + + m. m. cr. r. Bph.

Post.—P.-2 a. f. a. spp. 6. Pp.-2

Insp. gr. Exp. prol. h. t.

R1 cr. + + a. f. a. 5. Spp.

Rex. — Bph. a. f. a. 6. spp.

L. L. Ap. ant.—P.-1. 1sp. Pp.-1 a. f. a. u ii.
Rb.
Insp. gr. Exp.-h. prol. a. f.
a. 1. 1sp.
R1 m. m. mcr. + + + Bph.
a. f. a. 1. 1sp.
Post.—Scf. Retr. Rex.-
P.-1 a. f. a. 6. Spd. pr.
Insp. gr. Exp. prol. h.
R1. cr. diff. a. f. a. 6. Spd.
pr.
Bph. a. f. a. 6. Spd. pr.

Diagnosis.—Moderately advanced Tbc. Turban II B. involving both vertebral and 1/11 interspace trunks on either side.

The emaciated patient reacted on tuberculin O. T. positively, locally and focally after a dose of 0,0005. O. T. with an area of redness extending over 3½". The patient was treated every two weeks by an injection of 0,0002 O. T. A physical examination after ambulatory treatment revealed no marked improvement of the chest findings, so it was decided to resort to the application of highfrequency current for 2' twice a week. Digestive complaints suggested a test meal with the following results: Free HCL 60%, total acidity 95%, one hour after test breakfast. The patient's weight on 3/23 was found 123½ lbs., with the start of tuberculin treatment it rose to 142 lbs; when seen for the last time on 7/14, a difference and gain of 18 lbs. in 16 weeks could be recorded. The sputum was at first quite copious, 6 oz. a day, mucoid and frothy, but negative as to Tb. bacilli, occasionally hemorrhagic in aspect. The highfrequency lamp was applied to the bared skin over the involved pulmonary areas for 2' on the following dates and for several minutes, on 5/1, 2', 5/4, 5' and with the same length of treatment on the 5/17, 19, 26, on 6/5, 24, total amounts of treatments 32'. Of course in judging the results of any treatment, the objective and sub-

P. = percussion, a. f. a. = as far as, isp. = interspace, insp. = inspiration, gr. = granular, exp. = expiration, h. = harsh, t. = tubular, Rl. = rales, + + + = many, m.m. = moist, mucous, cr. r. = crepitant rales, bph. = bronchophony, P.-2 = marked impaired percussion sound, spp. 6 = sixth spinous process, pp. = palpitory percussion, prol. = prolonged, rex. = respiratory expansion diminished, u. = upper, II rb. = second rib, scf. = suprascapular form, retr. = retraction, spd. pr. = spinous dorsal process.

jective changes must be taken into account. Rapidly the patient's sputum was lessened in amount, finally disappeared entirely and no more blood was encountered in the expectoration. The acute sensation of pain in the chest, as well as the tired feeling, vanished and the formerly marked exhaustion, after the least exertion, subsided, so that eight miles of walk was no more followed by any systemic reaction at all. Altho in tubercular patients a physical examination may give varying results, if practiced from day to day, without any special treatment being applied, it was of interest to control the changes occurring after treatment, provided the examination was made immediately preceding the highfrequency application. Without attempting to draw any conclusions from the physical findings, it is of interest to mention the regress of the dull areas of percussion, for one or more inches, further, the lessening of crackles and moist rales. The constancy of these changes encountered in many cases without exception, suggests at least some immediate action of the electric waves. A physical examination made 7 weeks later, on 6/20, deserves some attention:

R. L. A. P. n.—Insp. gr. (+) Exp. n.
R1. cr. + Bph. O.
R. L. post.—P. + Pp. +
Insp. gr. Exp. sl. prol.
R1. cr. + Bph. O.
L. L. A. ant.—P. n. Pp. n.
Resp. n.
R1. O. Bph. O.
L. L. post.—P. n. Pp. n.
Insp. gr. (+) Exp. n.
R1. O. Bph. O.

A glance at the former findings, occupying much more space, will show the difference. Another point of interest is the patient's susceptibility to tuberculin. Before the starting of the electric treatment, the local skin reaction in 48 hours, after 0,0002 grams O. T. amounted to a hyperemic area of 2, 5/8" by 3, 1/8" and an area of tenderness of 1" by 7/8".

One week after the start of the electric treatment the patient, after the identical dose of 0,0002 grams O. T. 48 hours after

n. = normal, sl. = slightly, O. = none—absent.

wards, presented a redness of 6, $\frac{1}{2}$ " by 3, $\frac{5}{8}$ ".

A tenderness of $1\frac{3}{4}$ " by $\frac{1}{2}$ ", which unexpected reaction was attended by considerable tiredness and malaise, symptoms persisting for more than four days, the patient performed just the same amount of work and exercise as previously. The suspicion of a sensitization was entertained and on the next tuberculin treatment the dose was reduced to 0,0001. The following reaction resulted in 48 hours, *i. e.*, on 5/31, redness measuring $3\frac{1}{2}$ " by 2".

Tenderness 1" by 1, $\frac{1}{8}$ ", swelling still noticeable.

Such an observation recalls the observation on incipient tuberculosis patients, where a very small dose of tuberculin is required for obtaining a positive reaction. Further investigation along such a line is on the way and will be reported later. Up to date, five months later when the patient was interviewed, he was able to work 8-9 hours a day in a machine shop without the slightest disturbance of his health. Of course one is not forgetful of the difficulty of ascertaining the active process by physical signs alone, the question when a patient is healed or arrested always remains more or less doubtful.

Case II.—Mr. F. L. J., 29 years old, chauffeur has had pulmonary Tbc. for the past 3 years, was interned for 18 months in a state sanatorium, leaving from there apparently as an arrested case. In March, 1915, patient resumed his work, his health failing rapidly, particularly after a severe attack of whooping cough in January, 1916. Was unable to recover. Sputum was green, early vomiting in the morning, anorexia very marked, general exhaustion and toxemia. Considerable pain in his left chest, exacerbated with deeper breathing. Former weight was 161 lbs., present weight 133 lbs. Height of patient, 5' $10\frac{1}{4}$ ". Physical findings of the much emaciated patient, looking very hectic:

R. L. ant.—Rex.-2 A. retr. T. 3 a. f. a. 1. isp.

P-1 a. f. a. Scl. f. Pp. -2. a. f. a. u. Rb. 11.

Insp. cw- Exp. t. a. f. a. 1. Isp.

R1. cr. + 3- Bph. + a. f. a. u. Rb. 11.

- R. L. post.—Rex.-2. T. a. f. a. Scpf. P-2 a. f. a. 7. Spdp. Pp.-2 a. f. a. 9. Spdp. Insp. cw. Exp. prol. t. a. f. a. 9. Spdp. R1. cr. diff. 3 a. f. a. 9. Spdp. Bph. +
- L. L. ant.—Rex.-1 A. retr. T. a. f. a. 1—isp. P-1 a. f. a. Scl. f. Pp.-2 a. f. a. 1. Isp. Insp. cw. a. f. a. 1. Isp. Exp. prol. h. R1. cr. + 2. Bph. ++ 1 Isp.
- L. L. post.—Rex.-2 a. f. a. Scpf. T. a. f. a. Scpf. a. f. a. 5 Spd. p. P-2 a. f. a. 5. Spdp. Pp.-3 a. f. a. 7. Spdp. Insp. Prol. h. a. f. a. 5-Spd. Exp. ht-5 Spdp. R1. cr. + ms. diff. 3, lw. Ang. Scap. Bph. ++ 7 Spdp.

Physical Diagnosis.—Involvement of both upper lobes. Turban 11/111 vertebral, both interspace trunks possibly of apices of both lower lobes posteriorly.

Displacement of the heart to the left about $\frac{1}{2}$ " outside of the midclavicular line, heart sounds indistinct and weak. Sputum examination for Tbc. bacilli negative. Patient was very much in a hurry to get better and stayed in the city only ten days. Three highfrequency treatments, each of five minutes duration, were given every other day, directly over the involved areas. The subjective report of the patient after that time was: Temperature about 99. Less tiredness and exhaustion and coughs much less during the night. Daily amount of expectoration considerably reduced, better appetite, tenderness of the chest anteriorly and posteriorly disappeared. Objectively the physical examination on 3/27/16, ten days later:

R. L. ant.—A. P. + Pp. —1 a. f. a. Sclf.

Insp. prol. Exp. h.

R1. crp. (+). Bph. (+)

T. = tenderness on touch, Scl. f. = Supraventricular form, cw. = cogwheel, uRbii = upper border of second rib, P. = diminished, impaired percussion, figures 1-2-3 meaning intensity, 1 = slight, 2 = marked, 3 = very marked diminution.

Ht. = harsh tubular, lw. Ang. Scap. = lower angle of scapula.

- R. L. post.—A. P. + Pp. — a. f. a. 3. Sppd.
Insp. gr. Exp. h. prol.
Rc. crp. + Bph. + a. f. a. 3.
Sppd.
- L. L. ant.—P. & Pp. + 1 a. f. a. A. a. f. a.
Sclf.
Insp. prol. Exp. prol. h.
R1. cr. (+) a. f. a. A.
- L. L. post.—A. P. & Pp. -1 a. f. a. 3. Sppd.
Insp. gr. Exp. prol.
R1. cr. (+) Bph. a. f. a. 3.
Sppd.

These findings compared with those 10 days before, show at a glance an improvement, namely: Regress of the dull areas on ordinary and palpatory percussion, less extensively impaired breathing and only scanty, indistinctly noticeable crepitant rales and less bronchophony. An inquiry into this patient's condition 9 months later gives the following results: Patient is feeling well, coughs very little and is able to attend to his work several hours a day, without any disturbance to his health.

Case III.—Mr. L. A. G. L., 25 years Seminarian. F. H. has no relation to the disease present. P. H.—Measles and pneumonia in childhood. Consulted me in January, 1915, for gastritis, on which occasion physical examination revealed chronic catarrh of both lungs, involving right upper and part of middle lobe, and left upper lobe. After Leube-Riegel test meal free H. C. L.—22%, total acidity 66%; faint trace of albumen in urine and no casts. Pulse rate 78, systolic 126 mm., diastolic 66 mm. (Tycos) pulse pressure 60 mm. cardiac activity for one minute. 14976 mm. Hg. Height 5 ft. 7 in. Weight 135 lbs., from 10-15 lbs. below the patient's average. Normal temperature. Focal and local reaction after .001 O. T., 48 hours on 3/5/15, area of (R) measured 4" x 4". Area of (T) 1½" x 1¼". Moderate Sw. Patient received every two weeks a therapeutic dose of O. T. .00025 up to 5/21/15, which injection in 48 hours gave the following reaction: R—1" x 1½" T.—1¾" x 1¼". Marked Sw. Temp. 99.4 on the 5/20. The patient's lung condition up to that time showed considerable improvement; the lesions being restricted to both apices with moderate Pp.-1. Exp. prol. h. R1. cr. (+) Bph. (+). Gain in weight after an initial

loss of 2 lbs. in first week, during O. T. treatment, 12 lbs. in 14 weeks without requiring interruption of patient's studies. Patient was seen no more until 1/5/16, then complaining of a protracted cold and dyspeptic symptoms; moderate rise in temperature 99, weight 134 lbs., considerable mucoid sputum, with no Tbc. bacilli. Pulse 87.

Lung examination as follows:

- R. L. ant.—Retract}+ a. f. a. 1 Isp.
Rex. } T. a. f. a. 1 Isp.
P.-1 a. f. a. A.
Pp.-2 a. f. a. 1 Isp.
Insp. gr. a. f. a. 1 Isp.
Exp. prol. t.
R1. cr. + 3. Diff. a. f. a. Isp.
Bph. + 2 a. f. a. 1 Isp.
- R. L. post.—Retract}+ A. a. f. a. Sscf. + T
Rex. }
P.-2 a. f. a. 5 Sppd.
Pp.-2 a. f. a. 7 Sppd. d.
Insp. gr. cw. a. f. a. 7 Sppd.
Exp. prol. h. (t) a. f. a. 5 Sppd.
R1. cr. + (2) diff. a. f. a. 7
Sppd.
Bph. + 2 a. f. a. 7 Sppd.
- L. L. ant.—Retract}+
Rex. }— Ap.
P.-1 a. f. a. Sclf.
Pp. -2 a. f. a. Sclf.
Insp. gr. cw. a. f. a. A.
Exp. prol. h. a. f. a. A.
R1. cr. + 2 diff. Sclf.
Bph. + 1 a. f. a. 1 Sclf.
- L. L. post.—Retract} a. f. a. Sscf. T. ++
Rex. }
P.-2 A. a. f. a. 3 Sppd.
Pp. -2 A. a. f. a. 4 Sppd.
Insp. gr. cw. Exp. prol. h. a. f.
a. 3 Sppd.
Bph. + 1 a. f. a. 4 Sp. d. pr.

The interpretation of these physical signs would suggest an active case of pulmonary involvement Turban 11/111 B. affecting upper and apex of right lower lobe; on left side vertebral and first interspace trunks, possibly also second interspace trunk.

Early in February, patient was treated with O. T. .002 showing R—1¾" x 1½", T—5/8" x 3/4", and moderate Sw. after 48 hours. Every two weeks, up to .004 O. T.

P.+ = hyperresonance on percussion.
R. = redness, T. = tenderness, Sw. = swelling.

were given as on 3/24. Third injection was followed in 48 hours by the local reaction R— $\frac{3}{8}$ " x $\frac{1}{4}$ ", T— $\frac{1}{2}$ " x $\frac{3}{4}$ ", Sw. moderate. The physical examination revealed, 4/5/16, 11 weeks after the first overhauling of the chest:

- R. L. ant.—A. Sclf. P.-Pp.-1
T.+ Sclf.
Insp. n. Exp. prol. h.
R1. cr. + Bph. +
R. L. post.—P.-1 a. f. a. 3 Spdp.
Pp.-1 a. f. a. 5 Spdp. + T.
Insp. h. Exp. prol. h.
R1. cr. + 2. Bph. a. f. a. 5
Spdp.
L. L. ant.—Sclf. P. & + Pp. -1.
Insp. n. Exp. prol. h.
R1. cr. + Bph. +
L. L. post.—P. + 1 a. f. a. 2 Spdp.
Pp. + 1 a. f. a. 3 Spdp.
Insp. h. Exp. prol. h.
R1. cr. + 2 a. f. a. 3 Spdp.
Bph. a. f. a. 3 Spdp.

4/16 the same dose as on 3/24, freshly prepared solution being used with .004 O. T. local reaction in 48 hours:

- R. 1" x $1\frac{1}{2}$ "
T. $1\frac{1}{2}$ " x $\frac{7}{8}$ "
Sw. 1" x 1"

On 4/4/16 the patient for the first time had been given local highfrequency current, for 2" on each apex, and reported on 4/12 considerable relief from pain and tiredness lessened, hardly noticeable cough and insignificant expectoration.

The same treatment was repeated on 4/19/16, for the same length of time. The patient's observations are of interest, since he left well stimulated. Digestive complaints, cough and expectoration were strikingly diminished. With a smaller dose of .003 O. T. on the 4/26 the local reaction, amounted in 48 hours to R. 1" x $\frac{3}{4}$ "

- T. 1" x $\frac{3}{4}$ "
Sw. 1" x $\frac{7}{8}$ "

Two weeks later the patient having injected .0025 O. T. made quite a marked and more extensive reaction in 48 hours, but, while before the cough was always more pronounced, this time nothing abnormal along this line could be observed. In 16 weeks the patient's weight had increased 12 lbs. and he felt perfectly well. On 9/16 without any further treatment,

except two sittings—of 2' duration, each—of highfrequency applications showed the following chest findings:

- R. L. ant.—P.+ Pp. n.
Resp. n.
R1. cr. (+) Bph. O.
R. L. post.—A. P. + Pp. — a. f. a. 3 Spdp.
Exp. (prol.) R1.
Bph. O.
L. L. ant.—P.+ Pp. — (1)
Insp. + gr. Exp. prol. h.
R1. cr. + (few) Bph. + (1)
R. L. post.—A. P.-1 a. f. a. 3 Spdp.
Exp. prol. h.
R1. cr. + 1 a. f. a. 3 Spdp. +
Bph. +

If we compare the physical findings of this case, as revealed on 1/15 with those noted on 4/15 and 9/16, we see a considerable difference suggesting a marked improvement. Also as mentioned in case I, we cannot neglect the higher sensibility to tuberculin, which followed the highfrequency treatment, nor is it permissible to overlook the subjective improvement observed by the skeptic patient.

In the present casuistic study, altho limited to a few cases, with all respects toward a critical reserve, we may recapitulate the following points:

Case I.—On primary examination listed under Turban II, B. with physical changes in the vertebral, and at least the 1st possibly also, of the 2nd interspace trunks and marked activity, was transformed into a case with considerably lessened physical signs, which changes were substantiated by the patient's subjective improvement.

Case II.—A very active 3rd stage, patient offering a very doubtful prognosis. On last examination, suggested less active lesion apparently not exceeding the physical signs expected in a second stage case. Subjectively improved. Sputum, daily amount considerably lessened, regained his appetite and became less toxic.

Case III.—Corresponding to lesions classified as Turban II/III B. both upper lobes being affected and suggestive changes in apex of right lower lobe was transformed into a case with the lesions pointing towards Turban 2nd., namely, physical changes in both vertebral and both interspace trunks on the right, physical changes unlikely exceeding the areas of both verte-

bral trunks. Subjective improvement as regards the symptoms and general condition including the weight.

Case IV.—More extensive lesions, answering to Turban 11/111, more likely the latter with involved vertebral, 1/11 interspace trunks, complicated by lesions in the apex of right lower lobe, of vertebral and first interspace trunks on the left side; experienced temporary relief of intense pleuritic pains, marked cough, lessened amount of mucopurulent expectoration. This latter case points very emphatically to the fate of irresponsible weaklings affected with the disease, wherein the desire to preserve life and fight the infection by all cooperation with medical advisors, sooner or later fails, and so the patient surrenders his hopes to the fatal disintegrating action of the determined bacterial invader.

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THE PREVENTION OF GOITRE.

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It would not be presumptuous to claim that the prophylaxis of goitre, if earnestly attempted, would succeed in its purpose in from 30 to 50% of instances. Deducting the percentage of cases of hereditary and "idiopathic" etiology, the attributed causes of thyroid enlargements are eradicable, all things being equal. This is attested by experimental evidences not only in goitrogenous districts of Switzerland, France, Italy, India and elsewhere, but in regions where

goitre is not at all endemic. Marine and Kimball,¹ after extensive experiments in this work, conclude that simple goitre is probably the easiest of all known diseases to prevent.

With respect to the causation of goitre, McCarrison² thus sums up the question: "The problem of the causation of goitre is one which has exercised the minds of observers since the earliest days of medical history. There are, indeed, few diseases about which so much has been written and so many diverse views propounded. The association of goitre with mountains has led to the promulgation of many of these views. A causal influence has been attributed to the configuration of the soil, to waters derived from certain soils and charged with certain chemical ingredients, to altitude, to the rarity of the atmosphere, to cold and dry air, to air holding too little oxygen and to air holding too much, to air laden with sulphurous vapors, to the action of cold air on the neck, to a want of iodin in the air, to air charged with electricity, and to some half hundred other such causes. One is apt to dismiss with scant ceremony the observations of earlier observers in this field of research, but if we consider some of their views in the light of our modern knowledge of the thyroid function, we shall realize the truth that is in many of them. The effect of altitude and of rarified atmosphere falls into place with the gland's function of regulating the respiratory changes and of maintaining the red blood corpuscles and the hemoglobin at a level proper to the altitude. The lack of iodin in the air at altitudes above 1,000 feet will indirectly influence the thyroid toward hyperplasia by its lack in the food. The ingestion of waters charged with an excess of lime adds to the burden of the thyroid's

numerous duties. Even configuration of the soil, by favoring the entry of surface drainage into unprotected water supplies, is not without considerable influence in the genesis of the disease."

Let us discuss briefly a few of the most plausible views in etiology and prophylaxis of this affection.

Heredity plays an important rôle in the occurrence of goitre, the percentage of cases so influenced varying widely in the opinions of observers. Female offspring are more influenced by hereditary goitre than male. Moving away to nongoitrous districts tends to cause a gradual diminution of the hereditary predisposition. Billiet, writing in 1835, (quoted by Crotti,³) remarks that "after emigration from endemic territory the hereditary tendency slowly disappears, a complete cure being effected only in the third generation." It can be surmised, then, that a mother with a goitre may give birth to a child with thyroid derangement, especially if the offspring be a female; also, that the child, tho born with an apparently normal thyroid, is more susceptible to thyroid disease than one whose parent's thyroid was normal. The various causes of goitre operating on the mother during pregnancy may similarly affect the infant.

Despite certain recent views to the contrary, the opinion that goitre can be produced by water is based upon more than mere theoretical speculation. From the days of antiquity to the present time, proof is not lacking in order to convince the most skeptical of the causal relationship between certain kinds of water and the incidence of goitre. To pass on from the allusions made on this subject by Hippocrates, Aristotle, Pliny, and others, Lombroso, quoted by Andre Crotti³, alludes to the wells in Cava-curta in Lombardy as: "The goitre fountain

which is visited by youths at the time of conscription in order to acquire this infirmity in two weeks, and thus avoid military service." Many are the instances which could be cited of visitors to goitre districts, who, having developed an enlarged thyroid, were cured shortly after leaving that locality. This need not be necessary, however, as experiments of competent observers prove that the boiling of water is a sufficient safeguard against goitre, the exciting cause being microorganismal in nature. Bernhard⁴ states that a feature of prophylaxis is the presence of a "healthy" well near every schoolhouse. The water may also be purified by ultraviolet rays or addition of iodin or boiling. However, natural sunlight is the best disinfectant and combined with exercise in free air is also a prophylactic for the child. A survey of shade dwellers and sun dwellers on the slopes of mountain valleys shows marked differences in constitution, the former being more dumpy in build and phlegmatic, while the latter are slender, lean and lively. Bernhard believes that the favorable influence of solar light in the prophylaxis of goitre has never yet been duly honored. He points out that the intuition of a gifted layman has proved to be superior to the scientific knowledge of his day, and many years ago Balzac saw in absence of sunlight and free air the cause of cretinism. Tourists and those who take cures in Switzerland almost never become goitrous as they naturally visit the country only in the summer or sunny months.

Kocher⁵ also advocates modifying the drinking water by addition of a minute amount of iodin. In the endemic foci the children first show signs of goitre after a few months in school; the confinement in school predisposes them to feel the effects of the unknown substance that causes goitre.

On the other hand, army service is liable to cause the retrogression of established goitre. Guttinger⁶ reported that in one group of 417 young recruits—all just 20 years old—331 showed goitre at the beginning of their military service, but no signs of goitre could be discovered in 146 of them at the close of their service. Of seventy-six visible goitres all have retrogressed except 21 per cent., and of 138 goitres evident on palpation, only 58 per cent. could still be felt by the end of their term of service. These facts confirm the importance of hygiene and outdoor life in warding off goitre. Kocher⁵ cited experiences which demonstrate the favorable action of iodin in the earliest phases of endemic goitre, and also the experiences with fishes which developed goitre in certain ponds and the goitres retrogressed when a minimal amount of iodin was added to the water. He therefore suggests that in endemic foci of goitre the younger school children should be encouraged to drink freely of water prepared with a minute amount of iodin. This in connection with ventilation, clothing that does not bind anywhere, regular bowel movements, and plenty of exercise in fresh air will tend to ward off the development of goitre. That good drinking water not only prevents goitre but aids in the retrogression of old goitres was proved by his experience with Lauterbrunnen water supplied to 75,000 school children in the Bern district. He urges that this water should be barreled for the school children.

McCarrison² has carried out a large amount of experimental and epidemiologic research which proves that the prime cause of endemic goitre is a living organism. He bases the above conclusion on the following facts:

- (1) In goitrous villages situated one

above the other on an unprotected water supply, the incidence of goitre steadily increases from above downward, depending upon the increased impurity of the water.

(2) Goitre has been produced in the human subject by the ingestion of the residue left on the candle of a Berkefeld filter after filtration of goitrogenous water. This residue when boiled does not cause the disease.

(3) The administration of intestinal antiseptics, *e. g.*, beta-naphthol or thymol, causes the disappearance of recent goitres in young subjects. Lactic acid bacillus administered daily to recent cases of goitre may cause the complete disappearance of the swelling.

(4) The cure of chronic constipation and intestinal stasis associated with goitre, as by the operation of short circuiting or colectomy, causes the disappearance or marked reduction in the size of the goitre. (Lane.) This proves intestinal toxemia as the causal agent.

(5) Fish confined in tanks situated one above the other on a single water supply, show an increasing proportion of thyroid hyperplasias from above downward. The addition of iodin or the like has a prophylactic or a curative influence upon the hyperplasia.

(6) The administration to rats and dogs of the scraped deposit, found on the inner surface of the water-soaked wooden tanks in which the fish are confined, produces thyroid hyperplasia and goitre. This substance is rendered innocuous by boiling. (Gaylord.)

(7) Rats, goats and other animals are rendered goitrous by being fed on fecal material from goitrous and even nongoitrous subjects.

* * * * *

(10) Vaccines prepared from intestinal organisms are capable of causing a dis-

pearance of recent cases of goitre when injected in appropriate doses at weekly intervals.

McCarrison² concludes from these facts that the causal agents of goitre are micro-organisms inhabiting the alimentary canal of sufferers from this disease, and often of other persons whose thyroids show no actual enlargement, but which, nevertheless, may be in a hyperplastic state. These reach the alimentary tract thru infected soil or water, and such an infected individual may become the "carrier" of the infecting agents.

The marked influence of diet upon the size and activity of the thyroid gland has been known for some time and been experimentally proved by Watson⁷ and others. A dietary deficient in iodin is capable of enhancing the occurrence of simple goitre; food rich in animal proteids or a dietary rich in fleshy substances increases the activity of the thyroid gland with concomitant loss of stored up thyroid secretion which is thrown in excessive quantities into the blood. It is for this reason that a dietary containing a minimum of flesh or, what is best, an absence of animal foods is the ideal regimen for subjects susceptible to or suffering from goitre.

It has been emphasized by many observers that iodin, the extract of thyroid gland, or both, administered at the right time in proper dosage, is capable of preventing the formation of simple goitre, especially during adolescence. It is without danger if carefully administered. Roux suggests that it would be useful to have an open jar with a few crystals of iodin placed in each schoolroom, the crystals renewed as they evaporate. The amount of iodin thus inhaled would be infinitesimal and harmless, while during the school year it might act as effectually as the iodin inhaled at the sea-

shore which generally suffices. At the hospital and polyclinic in his charge he distributes on every occasion small boxwood medallions containing a crystal of iodin in waxed paper.

Marine and Kimball¹ state that from the practical standpoint the first instance of preventing goitre on a large scale was accidental and in connection with the sheep-raising industry of Michigan. Prior to the discovery of salt deposits around the Great Lakes, the future of the industry seemed hopeless; but with the development of the salt industry and its use by the sheep growers, goitre rapidly decreased. The explanation as furnished by Marine⁸ is that salt contains appreciable quantities of both bromin and iodin, and in places these elements are extracted commercially. The second instance of goitre prevention on a large scale was in brook trout, and the disease was averted in the hatcheries by the use of tincture of iodin added to the water. In a census taken by Marine and Kimball¹ of the condition of the thyroid in the girls from the fifth to twelfth grades of the school population of a large community in the Great Lakes goitre district, it was found than 1,688 or 43.59 per cent. had normal thyroid; 2,184 or 56.41 per cent. had enlarged thyroids; and 594 or 13.4 per cent. had well defined, persistent thyroglossal stalks. The district lies near the southern edge of the goitre area, and it is suggested that communities near the lakes would show a larger incidence. For the prophylactic treatment the authors selected sodium iodid on the grounds of economy and ease of administration. In all their dispensary experiments with children the authors used either syrup of hydriodic acid or syrup of ferrous iodid, in 1 c. c. doses, daily for two or three weeks, repeated twice yearly. They arbi-

trarily selected to use 2 gm. sodium iodid, given in 0.2 gm. doses each school day, for each pupil in fifth, sixth, seventh and eighth grades; and 4 gm. given in 0.4 gm. doses each school day for each pupil in the ninth, tenth, eleventh and twelfth grades. These amounts may be given twice annually about the first of May and December, at the schools, by the teachers or nurses. These amounts of sodium iodid provide approximately 1,700 mg. of iodin for each pupil of the fifth, sixth, seventh and eighth grades and approximately 3,400 mg. for the ninth, tenth, eleventh and twelfth grades. The summarized results of reexamination by these observers, made six months later, of all girls from the fifth to the twelfth grades, show that not a single pupil in whom the thyroid was normal at first and who was given iodin showed any enlargement, while of those not taking iodin, 26 per cent. showed definitely enlarged thyroids, and some, moderately large goitres. The treatment, in addition, proved of curative value. One-third of the goitres marked "small goitres" disappeared; and one-third of those marked "moderate goitres" showed a decrease of 2 cm. or more. Accordingly, the investigators properly remark, a distinct therapeutic effect is clearly demonstrated. Commenting upon these experiments, an editorial in the *Jour. A. M. A.*⁹ suggests that these statistical findings are the more conclusive because they represent not dozens but hundreds of carefully examined cases. More than a thousand girls took the full treatment, the latter being restricted for the present to this sex because during the adolescent period simple goitre occurs more frequently in girls than in boys. The iodid rash prophesied by some critics failed to materialize in any noticeable way in more than five girls, in whom it was transi-

tory and uneventful, promptly clearing up when the treatment was stopped. The investigators also now give assurance that there is no danger of producing a toxic condition like exophthalmic goitre under this prophylactic regime, as not a single symptom of this alleged danger from the use of iodids was encountered. Nor was anything different to be expected; for, as Marine and Kimball¹ reminds us, the risk of inducing manifestations of exophthalmic goitre from the use of iodin in physiologic doses is exceedingly small, even in those cases in which there were large hyperplastic thyroids, that is, the kind of thyroid enlargement that would permit of the most rapid formation and excretion of the iodin-containing hormone. The extent to which iodids are used in general medicine and surgery and the rarity of the development of signs of exophthalmic goitre is the best index of the danger or its absence. Iodin is usually employed in immensely large doses; from 0.2 to 0.4 gm. of sodium iodid daily for two weeks would offer a great excess over the amounts necessary to saturate even the largest thyroids, and probably much smaller amounts would suffice in man, as it has been proved to do in the lower animals.

P. Klinger¹⁰ advocates that at least 2 or 4 mg. of iodin should be given to each person daily in experiments in the prophylaxis of goitre. Any amount less than this is futile.

Hunziker¹¹ concludes his long study of the prevalence of goitre in different regions and altitudes of Switzerland by sustaining his theory that goitre is a functional hypertrophy of the thyroid caused by the effort of the organism to make up a deficit in the iodin supply. As the iodin naturally is supplied in the food, goitre is prevalent in regions where the vegetation lacks the stand-

ard proportion of iodin. Iodin-containing manure in the regions where goitre is endemic might supply the vegetables with the needed iodin, and thus exterminate goitre. Hunziker therefore concludes that the iodin-poor vegetables are what connect goitre with climate and geologic formations. The simplest way to remedy the poverty in iodin would be to have salt made with a small admixture of iodin. A year of such "fertilizing" of human beings on a large scale would go far toward solving the problem.

Kjlstad¹² states that goitre is extremely prevalent in the Telemarken district in southern Norway, southwest of Christiania. In one school at Lunde 80 per cent. of the children have goitre. Most of the goitres are of the atoxic type, and they nearly always subside under iodin. He never noted any symptoms of intolerance in children, but several adults developed symptoms of thyrotoxic action, and one girl of 15 seemed to have had her simple goitre transformed by the iodin into exophthalmic goitre, altho the medication had been moderate and the intermissions long. The iodin seems to act on the hyperplasia of the parenchyma; colloidal nodules and cysts are comparatively little affected by it. The parents must be warned that iodin treatment of goitre takes a long time; too vigorous treatment he regards as dangerous. The dosage he prefers with colloidal goitres is 0.10 gm. potassium iodid every other day for two weeks, and then suspension for three weeks and resumption for two weeks, and so on. With merely parenchymatous goitres, he follows the Kocher method of anointing the goitre with an iodin-potassium iodid salve, using from 1 to 3 gm. daily for two weeks at a time, then suspension for three-week periods. Salve is better than the tincture,

as it spares the skin. No other treatment or drugs have proved effectual in his experience. According to Kjlstad, Roentgen treatment is liable to injure the still intact portions of the gland. With symptoms of exophthalmic goitre or other signs of excessive functioning of the thyroid, sodium phosphate in a 5 per cent. solution seems to give good results—a tablespoonful four times a day, in milk. The basis for this treatment is the antagonism between iodin and phosphorus in the action of the thyroid gland. (A. Kocher.) He has often seen the goitre subside under this treatment, especially when the patients gave up work and went to the hospital.

One often meets cases of goitre in young, sallow-complexioned girls. These are the cases which McCarrison² has designated as instances of toxemic goitre in which he indicates the pathogenesis of the affection. A combination of causes conspires to bring about an enlargement of the thyroid in these instances. The establishment of menstruation with its profuse, painful periods; the coexistence of a degree of chloro-anemia; the stubborn constipation with its autoin-toxification, especially by the *bacillus coli communis* and its products, and according to McCarrison², a "controlling appendix," i. e., an appendix which by its adhesion to neighboring parts controls the onward flow of ileal contents into the large bowel, producing intestinal stasis, may here be associated. A predisposing hereditary taint, that is, the presence of goitre in the mother, frequently renders the child more liable to thyroid enlargement.

The treatment in these cases is the avoidance of the probable cause or causes. The administration of iodin or the iodides, guarded doses of thyroid extract, proper attention to diet and gastrointestinal tract,

complete rest during the menstrual period, and if necessary, the elimination of a diseased appendix or other causes of intestinal intoxication or stasis, are here indicated.

A diseased state of the tonsils and adenoids, because of their contained bacterial and toxic deposits, is strongly potent in the production of goitre, both simple and toxic. In every instance of goitre where such diseased lymphatic structures exist, their prompt removal should be considered of primary importance in the treatment. Often surprisingly prompt results are obtainable. A case of mine recently, a woman of 26, presenting a medium sized nontoxic goitre of four years' duration, was advised to permit the removal of her diseased tonsils. Within six weeks following the tonsillectomy, the patient's improvement in health was so marked and the size of her neck so greatly reduced as to appear almost normal. A few weeks later she was discharged cured, the thyroid became normal, and there was a considerable increase in weight and strength.

On the other hand, Leonard Williams¹³ warns us that enlarged tonsils and adenoids are evidences of thyroid deficiency in some children. Says Williams: "Adenoids and enlarged tonsils occur in children who have an inadequate supply of thyroid secretion. The hypertrophic condition in each case is apparently an endeavor on the part of the organism to supply an internal secretion as nearly allied as possible to the one which is lacking. If the hypertrophy is not very pronounced, and if it has not been very long in evidence—great enough and protracted enough, *i. e.*, to produce complications, such as disease in the tonsils themselves or in the ears—then the exhibition of thyroid extract will cause the regression." It is advocated that cases of so-called mental deficiency in children should not lead

to an incrimination of the size of the tonsils and adenoids unless the latter be diseased. Williams asserts that this mental deficiency is probably due to the presence of an inefficient thyroid gland, the coexisting hypertrophy of the tonsil and adenoid tissue existing merely to compensate for thyroid deficiency. These lymphatic structures should not be removed until after the administration of thyroid extract for a reasonable length of time has not produced a shrinking of those tonsils and adenoids and an improvement in the mental condition of the child.

During menstruation and pregnancy the thyroid gland swells, in some to an imperceptible degree, in others to the extent of goitre formation. Frequently repeated pregnancies, thru repeated stimulation of the thyroid gland, may lead to permanent enlargement of the organ, until, in the course of years, a goitre is formed. Shock and emotional excitement during menstruation and pregnancy render the subjects more liable to goitre formation. In these cases, the judicious administration of thyroid gland, alone or combined with potassium or sodium iodid, and an endeavor to tranquilize the patient's environments will usually succeed in avoiding the excessive drain upon the thyroid gland and averting goitre.

In the prophylaxis of exophthalmic goitre it may be said that since many etiologic factors are common to both the simple and the hyperplastic types of goitre, the avoidance of the known causal factors will serve to prevent hyperthyroidism. It must be remembered that tho a cause or set of causes are known to excite a mere increase in the size of the thyroid gland, as for example, infections from the mouth or intestines, the changes incident to puberty, pregnancy, etc.,

this thyroid disturbance often takes the form of an aberration of function, *i. e.*, diminished or increased, or more rarely, a combination of the two. Moreover, a previously existing simple goitre may become toxic and give rise to the Basedowian syndrome. The foregoing suggestions calculated to overcome the etiologic factors common to both simple and exophthalmic goitre must be carried out in the latter disease. Due emphasis must be placed upon the importance of eliminating tonsillar and nasal infections, pyorrhea alveolaris, decayed teeth, and autointoxication from the intestinal tract; susceptible individuals should be ordered to avail themselves of the maximum of physical and mental repose during menstruation and pregnancy; all forms of worry, excitement, shock, and the like, must be avoided. It has been proved clinically that an excessive meat diet predisposes to autointoxication, and this, in turn may engender hyperthyroidism. It is therefore suggested that the diet be almost, if not entirely, of vegetarian characteristics. The strenuous life of today with its complex problems—its hustle and bustle, its high tension, restless sleep and hurried meals—conduces to nervous dyspepsia and neurasthenia, and is strongly provocative of hyperthyroidism. The prophylactic treatment of this class of cases is obvious.

Last, but not least, must be mentioned that state of nervous tension with its necessary accompaniment of thyroid instability which is associated with the undue postponement of the married state. Prolonged engagements, especially, are highly potent in the production of a varying degree of hyperthyroidism. The author has met with an example of a most extreme case of hyperthyroidism in a girl who developed these symptoms three years after the announce-

ment of her engagement. A heart to heart talk with the couple which resulted in their consent to see each other less frequently and to keep good hours, plus the institution of dietetic, hygienic and medicinal measures, yielded marked benefit within four months. They were then advised to marry. This was followed by complete cure within six months, and they bid fair to "live happily ever afterwards."

CONCLUSIONS.

1. Goitre is largely a preventable condition.
2. The chief preventable means are the boiling of water in regions where goitre is endemic, the favoring of a less fleshy and more iodin-containing diet, and the removal of focal infections, especially of the mouth and intestines.
3. School children may be protected against goitre by the administration, under careful supervision, of iodin or the iodides.
4. During adolescence and pregnancy, thyroid disturbances may be overcome by the judicious administration of thyroid extract, the iodides, or both. Physical and mental repose are essential requirements.
5. The prevention of exophthalmic goitre is intimately related to the prophylaxis of simple goitre, since (a) etiologic factors common to both toxic and nontoxic goitre may lead to primary Graves' disease, and (b) a simple goitre may become toxic during the course of its existence, leading to a secondary Basedowian syndrome.
6. The relaxation in the strenuousness of modern life, in favor of the simple mode of living, the reversion to the old-fashioned short engagement and early marriages, would tend to reduce the number of cases of Graves' disease to a minimum.
7. Exophthalmic goitre being primarily

a functional disturbance of the endocrine organs, in which the thyroid gland is made to saturate the blood with its secretion, resulting in a turbulency of the nervous, circulatory, and other functions, is not only largely preventable thru the suggested prophylaxis but is also nonsurgically curable¹⁴ by the institution of the proper corrective, dietetic, hygienic and medicinal measures. The author has succeeded in curing every primary case of Graves' disease that came to his attention, some of these patients having previously undergone thyroidectomy without benefit.

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Two Cases of Dermatitis from Salvarsan.—Goldfarb (*Dermatologische Zeitschrift*, April, 1918) states that in both cases the process began with the appearance of small red punctiform spots which later became confluent. Soon afterward, there developed a rather severe moist necrosis with scab formation and thick crusts and finally scales of various sizes appeared. A cure of the cutaneous process resulted in about three months' time.

A PLAN FOR THE ERADICATION OF VENEREAL DISEASES IN LOCALITIES.

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Strenuous efforts are being revived in this country to suppress public immoral houses and prostitution. All such attempts have failed in the old country, the result having been to drive all public women into the more dangerous clandestine class. The city of Paris runs the public house system with more or less perfunctory sanitation.

In view of these stern facts it is my deep conviction after long thought and meditation that the next best thing is to subject all immoral women to rigid sanitation.

I earnestly believe the spread of venereal diseases could be reduced by about eighty per cent. by the enforcement of some such regulations as follows:

Public immoral women should live in houses registered at the Board of Health by the keeper of the house.

The keeper shall see that every woman who has had sexual connection with a man shall be administered an antiseptic douche by a trained nurse stationed in the house by the Board of Health. This shall be done before the woman has sexual connection with another man or before she leaves the house. The nurse will represent the Board of Health with all its prestige and authority.

The keeper shall provide the trained nurse with a suitable room for douching and sleeping in.

The keeper shall provide the nurse with

three acceptable meals a day sent to her room.

The keeper shall pay monthly or weekly to the Board of Health a sum fixed by the board sufficient to pay the salary and expenses of the nurse and of the system. Clandestine women also shall pay a high license.

Men shall not remain in the house after one o'clock a. m.

In case of violation of the regulations the house shall be closed by the Board of Health.

Clandestine immoral women are more numerous, more dangerous and more troublesome because of the difficulty of locating and keeping track of them.

Boards of Health shall have a corps of female sanitary inspectors to locate and attend specially to the clandestine immoral women.

They shall have police powers to make arrests for the violation of the regulations.

They shall have the power to search premises without warrant for violations of the regulations.

They shall be trained in douching properly and detecting venereal diseases in the female.

Large cities shall be divided into sections with inspectors assigned to each.

The inspectors shall locate the immoral women by interviewing confidentially the physicians of their section, the druggists, the grocers, a female resident in each block.

An immoral woman is one who has sexual connection with different men, two or more.

To convict a woman of being immoral, the inspector shall send two men or more to make propositions to the woman. If she accepts, it is sufficient proof. There need not be actual sexual connection. The men shall make a sworn affidavit of it before a

notary or before the chief sanitary inspector.

When located, the inspector shall make the woman register at the Board of Health. The thumb print shall be taken, also the photograph with date affixed.

She shall examine her for venereal diseases.

She shall see that she is given an antiseptic douche.

She shall teach her how to douche herself properly after each sexual connection.

She shall teach her how to detect venereal disease in the male; chancres, buboes, discharge from the urethra, stained shirt.

In case of refusal on her part to submit to these regulations, the inspector shall arrest the woman and bring her to the chief inspector who shall sentence her to one week's imprisonment.

The inspectors shall examine the immoral women of their section once a week or oftener.

When found diseased they shall be confined in a hospital or in jail until thoroughly cured.

Inspectors shall report to the chief inspector and obey his orders.

Men suspecting of having been infected by an immoral woman shall report her to the chief inspector of the Board of Health.

Boards of health shall have a department or committee on immoral houses and women.

There shall be a chief sanitary inspector, a man of character, standing and fitness, of the type of a judge.

He will have the power of a judge or recorder to enforce and impose sentences for violations of the regulations, one week of imprisonment for each offense.

He shall have the power to draw up affi-

davits, like a notary, and to administer oaths.

His office hours at the Board of Health shall be from 9 a. m. to 1 p. m. and from 2 p. m. to 5 p. m.

He shall decide if a woman is immoral or not.

Any violation of the regulations shall be punished by imprisonment, not fines.

Some of these regulations may be drastic, but we must bear in mind that the evil is great and the powers to fight it must be great and not sentimental.

Boards of health shall enforce these regulations.

Here again, the curbing of venereal diseases is a question of organization, money, and determination.

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LONDON LETTER

(From our Regular Correspondent.)

THE MINISTRY OF HEALTH BILL.

This important bill, having been read for the first time in the House of Commons without challenging any opposition, is now before a standing committee, whose amendments will be received in the form of a report to the House. One of these amendments has already gone to the heart of the bill, for the standing committee, without going to division, has recommended that all the functions of the Board of Education in respect of the medical inspection and treatment of children of school age should be at once transferred to the new Ministry of Health. The amendment is perfectly logical, because the Ministry of Health is being created in reply to a demand for a concentration of all the medical activities of the existing bureau into the scope of one department, but it was resisted by the President of the local Government Board, Dr. Addison, and the President of the Board of Education, Mr. H. A. L. Fisher, on the grounds of expediency. The bill is drafted in a distinct manner to do some things now and some things later, because those hav-

ing charge of the measure considered that to saddle a new department at once with the charge of all the existing state medical activities would be to court an early breakdown of the young institution. The standing committee considered, however, that the health of the children of school age was a prime charge upon the state, and its care could not possibly be relegated to some undefined future amending act of Parliament, and in their view the committee has received both public and medical support. No one has anything that is not actually complimentary to say of the way in which the Board of Education has administered the medical responsibilities in regard to its young charges. The work of the board has been intelligent, progressive and sympathetic, but there can be no reason why the same virtues should not be displayed in this administration of the new Ministry of Health.

THE STATE SUPPORT OF MEDICAL EDUCATION.

The medical profession is on the whole ill-paid in Great Britain. The institution of State Insurance created a certain security of income for general practitioners, but the service carries no promotion, and the salaries are not comparable to those earned by the state servants who follow law or theology, for example, while the engineer is always more highly paid than the doctor when the State employs their joint services. For this reason it is submitted that the question of what, if any, pecuniary support should be given by the State to medical education deserves the prominence which it has come into owing to the publication verbatim of the addresses of a group of distinguished men who recently urged upon the Government that in so many words higher education in England was still starving. The arguments put forward for state help in medical education were very strong. There is no medical man who gets an official salary more than half the size of the stipend of a bishop of the established church, who, moreover, succeeds in rota to a seat in the House of Lords and as such becomes a legislator. The official head of state medicine in England, the principal medical officer of health, receives a tenth of the salary paid to the head of the bar, who is *ipso facto* also the chairman of the House of Lords.

Yet this badly paid profession exacts five or six years at least of strenuous work from those who would enter it, and the cost is expensive, not less than \$5,000. *The Lancet* has estimated the figure as now being greater; and certainly it will become greater in the near future, for the mere material cost of medical education is advancing *pari passu* with the elaboration of scientific methods, the invention of new instruments, the introduction into clinical medicine and clinical surgery of a world of elaborate mechanism like that connected with radiology or with electrical treatment.

But this expensive profession is largely recruited by the sons of middleclass men who succeed to no private means, and whose parents

are often sorely tried to find the money to support their children thru a long and expensive curriculum. There is room here for State subsidy and of a more generous kind than the mere recognition by the Board of Education of medical schools as institutions for technical instruction.

Medical education is controlled by the General Medical Council, a statutory body acting under the Privy Council, which has the duty of regulating the examinations by which medical students are admitted to the Medical Register. The work done by the council in this as well as in other directions is delicate and arduous and it is carried on in the public behalf and in no sense for the protection of the profession of medicine. The council works under the Medical Acts, which are definitely designed to see that the medical profession is properly conducted and managed, so as to supply the public with adequate medical assistance. Yet this council receives no grant from the Crown. The whole of its work is paid for by medical men who, after their examinations, proceed to registration by payment of a capitation fee. The income from these capitation fees supports the council. It is an injustice that a body existing for the public good and for the protection of public health should be supported by medical men's money. On these grounds medical men feel strongly that the time has come when an endeavor should be made to get from the Government some endowment of medical education commensurate with the value to the State of a well instructed medical profession. The Board of Education makes grants to certain medical schools, regarding them as institutions of technical instruction, but this is a drop in the bucket in comparison with the fluid cash that is required. The strong hope of the medical profession is that in the debates in committee, which will now follow upon the first reading of the Ministry of Health Bill, some of these questions will be thoroly thrashed out. Money will have to be found for medical education. The London Hospital, the largest of the metropolitan medical charities, has just decided to appoint, instead of the usual honorary members of the medical staff, salaried directors of medical studies, who shall also be physicians in the wards, giving their whole time to the service of the hospital and the medical school. This is an advisable and progressive move towards bringing the clinical practice of the hospital into touch alike with medical education and medical research; but unless public subsidies are acquired, it is difficult to see where the adequate salaries are to be obtained, and if the pay is hopelessly small why should the right people compete for it.

THE ACTIVITY OF THE NATIONAL COUNCIL FOR THE PREVENTION OF VENEREAL DISEASES.

The activity of the National Council for the Prevention of Venereal Diseases has been particularly manifested since the demobilization of

the conscript British Army has begun to be extensive. And it is well that this should be so for undoubtedly, and as I have often foreseen in these letters, the incidence of gonorrhea remains heavy upon the troops. The Executive Committee of the National Council has collected and considered the expressed opinions of medical officers of health in regard to the immediate institution of facilities for early and continuous preventive treatment and as a result has formulated the following proposals among others:

That in large towns and densely populated districts the centers for such treatment should be under direct medical supervision and control. Such centers should be established in as many as possible of the following institutions: General hospitals, subsidiary clinics, such other places as may seem desirable to the local authority and in doctors' surgeries.

That in case early preventive treatment (first aid) has been rendered by a nurse or orderly, on an emergency, the patient should be referred to the medical officer of the center (clinic), and under no circumstances whatever should further treatment of any sort be given for the same risk of infection by such nurse or orderly.

This latter is a wise provision to ensure that no cases escape proper medical supervision, a danger which must always occur when venereal diseases are in question. The temptation of the nurses or orderlies to believe that the treatment of venereal diseases consists, and consists only, of their particular piece of technic is certain to be very strong.

The executive committee has wisely recognized that in the case of small towns, villages, rural and sparsely populated districts, such centers under medical supervision can only be arranged with difficulty and they suggest that failing the possibility of securing accessibility and privacy, general practitioners should be aided financially and encouraged to undertake such treatment at their own surgeries, so that means for efficient, early and continuous treatment under conditions of secrecy and medical control may be placed within the reach of every person. This is a most practical attitude to take up, for anyone with any experience, medical man and layman, knows that it is the fear of publicity which drives the infected young man into the net of the dangerous quack, equally dangerous, whether he practices or merely advertises. In this country advertisement has now become dangerous, so hedged about is it by legal restrictions, but unqualified practice still has its exponents, and they remain, as ever, predatory and ignorant rascals.

The Medical Committee of the National Council has issued a circular letter to all medical officers of health of counties and county boroughs in England and Wales, and to all medical practitioners in charge of venereal clinics in order to secure their views as to the most practical ways of bringing the facilities for treatment within immediate reach of the civilian population. From the answers received it would seem that the opinion of the medical committee was very fully endorsed by those

with practical experience of administration. The problem is very different as it is manifested in industrial centers or in country districts. In respect of industrial centers, the majority recommend that so long as the early preventive treatment is given under general medical supervision, the facilities should be available at as many centers as possible:—(1) At the hospital clinics. (2) At subsidiary clinics under the supervision of a medical officer, but in the continuous charge of trained members of his staff, orderlies and nurses. (3) At any *ad hoc* treatment clinic. (4) Such other places as may seem desirable to the local authority. (5) In doctors' surgeries (the similarity between this recommendation and the proposal of the executive committee is marked).

Very few consider it advisable to provide facilities for early preventive treatment without medical supervision, by the establishment of slot machines from which prophylactic "outfits" could be obtained in public conveniences or elsewhere.



Rational Organotherapy

The Ductless Glands and Development of Bones.—Hutinel concludes his article in the *Archives de Medicine des Enfants*, (Dec.; 1918) on the endocrine glands and bone affections with the statement that organotherapy does not seem to have fulfilled its promises but he believes that this is because we have been asking too much of it. We cannot expect it to cure incurable infirmities and deformities. If we distinguish the cases in which it will prove actually useful and reliable, and we are content to wait for the benefit to become apparent and not expect it immediately, effectual and durable results can be counted on. It is evident that notwithstanding the abundant literature on the subject, we are still in the tentative stage. It is only by pursuing the investigations, keeping up observations for years, and supplementing them by animal experimentation, that the profession can hope to obtain a decisive judgment on this great question of the organotherapy of dystrophies.

Outdoor life, hygiene, regulation of the diet, tonics, etc., are indispensable adjuvants to organotherapy and as there is usually more than one endocrine gland involved, it is important to determine which

ones. Tentative treatment and occasional failures are inevitable but experience will gradually clear away the uncertainty. It is wise to begin with small doses, as exaggerated susceptibility is not infrequent. Rachitis in infants develops under the influence of defective feeding and digestive disturbance with superposed damage from acute or chronic infections. All of the organs may have suffered more or less in their development, including the endocrinous glands, and their functional upset may add to the clinical picture. An organic extract might help but again it might not. The main reliance is on diet, cod liver oil, phosphorus, etc. But with rachitis in adolescents, supplementary to general hygiene, a trip to the seashore or mountains, rest for body and mind, with ample regulated exercise, thyroid, pituitary, ovary, testicle, even suprarenal extract may have a decidedly favorable influence. We must bear in mind, however, that rachitis at this age is transient and subsides spontaneously; this is another reason for combating it so that it need not leave deforming traces. In osteomalacia the most brilliant results have been realized with suprarenal treatment, sometimes associated with pituitary and thyroid treatment. In two such cases the inherited syphilis had beforehand been given prolonged intramuscular mercurial treatment with the benzoate. In chronic rheumatism, organotherapy gives the best results when the lesions are of recent development. Thyroid, supplemented with epinephrin or suprarenal capsule or pituitary is generally ordered; ovarian treatment for older girls. In adults there is not much encouragement for organotherapy of chronic rheumatism, except possibly with thyroid and ovarian extract for women, given early. Later, they are only possibly useful adjuvants. To be effectual they must be begun at the start and be long kept up.

If a child remains small, backward in developing, infantile, and there is reason to assume deficient thyroid functioning, thyroid treatment is absolutely indicated. It should be with large doses, long kept up. It may sometimes be useful to add ovary, testicle, pituitary or suprarenal treatment in addition to the cod liver oil, iron, arsenic or other measures that may be needed. With giant growth and acromegaly there are usually several glands involved, and pitui-

tary treatment is generally futile as the lesions are irreparable. In the obese, and with deformed bones, thyroid treatment is the chief indication at first, and later pituitary. Ovarian or testicle treatment should be added if the genital organs are backward in developing, plus calcium and iron, and hygienic environment. It is wise to weigh frequently and not to try to reduce the weight too fast. In children that are thin and look consumptive, with nutritional disturbances in bones and skin, suprarenal capsule, associated sometimes with pituitary and always with improved hygiene, has given good results. This is due probably to the fact that there is a certain degree of suprarenal insufficiency.

Thyroid Hormone and Its Relation to Other Ductless Glands.—According to Kendall (*Endocrinology*, April-June, 1918) the active substance of the thyroid has been isolated and analyzed, its empirical and structural formulae determined, its synthesis completed, and its physiologic action studied in a large number of patients at the Mayo Clinic. In considering the role of the other ductless glands of the body, Kendall states that they assume positions secondary in importance to the thyroid, and that their part may be preparing the various metabolites for their final action with thyroxin (the active constituent of the thyroid), the production of energy. In addition to this duty the task of taking care of by-products and elaborating other substances must be accomplished by some agent in the body, possibly the parathyroids and others of the ductless glands. A detailed description of the structural formula of thyroxin is given. It contains an indol group with the iodines attached to the benzene ring, and on the carbon atom adjacent to the amino group of the indol ring there is an oxygen atom. The physiologic activity of the substance is produced by the CO.NH groups. In explaining the action of iodine in the compound, the theory is presented that it renders the active groups more reactive.

Organotherapy in Wounds.—Serge Voronoff and Evelyn Bostwick (*Press Medicale*, September 9, 1918) report that, after much experimentation at the College

de France, they were able to cause healing of extensive and deep wounds in a few days, by applying locally the pulp of sex glands procured by castrating young animals. The cells of these glands, thru the secretion they contain and which is absorbed by the wound, exert an intense accelerating action on the process of granulation. The organ found most effectual in these experiments would, *a priori*, have been considered that most suitable, owing to its especial vital energy. Animals deprived of these organs are known to accumulate fat at the expense of their muscles and to become apathetic and passive. In the wounds treated with this material, its use often had to be discontinued after a few days in order not to exceed the results sought and cause projection of new tissue beyond the level of the wound cavity by reason of a too intensive development of granulations. With the aid of this treatment its sponsors hope to spare the wounded long months of suffering and considerably shorten their stay in hospitals. This method is being tried at Carrel's hospital.

Effect of Gland Extracts on Bile Secretion.—Downs and Eddy (*Amer. Jour. of Physiology*, Mar. 1, 1919) found that the amount of bile secreted is increased by secretin, and decreased by epinephrin and by mammary, orchic, ovarian, pancreatic and thymic gland substances. The bile secretion is not affected in a constant or definite manner by the substance of the spleen and thyroid.

Hyperthyroidism. — Hyperthyroidism is, according to Kuh (*Ill. Med. Jour.*, April 1919) an exceedingly common disease, more frequent in women, undoubtedly, than in men, but far from rare in the latter sex. It is found as a complication in innumerable cases of the so-called functional neurosis, and very often overlooked, because of the tendency to waste little time in the examination of a "neuro." Formes frustes are undoubtedly very much more common than the classical syndrome first described by Graves and Baseclow. The disease often has a very insidious onset and Kuh says he has no doubt that many of those who suffer from it go thru life without ever becoming conscious of its existence.



Physical Therapy

Under the Editorial Direction of Albert C. Geyser, M. D., New York.

The Physiologic Treatment of Catarrhal Deafness.

There is hardly another condition about which the prognosis is usually so gloomy from the average aurist's point of view as deafness due to or the result of chronic nasal catarrh.

The question arises "Why is it that these cases receive such a hopeless prognosis at the hands of the aural specialists, and yet these same cases make most brilliant recoveries when treated by physiologic therapeutics?"

The answer is this: The aural specialist treats this affection from a pathologic view point, he recognizes the impossibility of restoring the normal physiologic condition of the parts, either with drugs or yet with surgical operations. Other measures, such as heat, vibration or electricity are either too complicated or seem to suggest "the quack" to him and therefore beneath his dignity to inquire into.

It will be my privilege to call your attention to the physiologic methods of treating these cases.

The Physiology of the Nose.—The physiology of any part is always dependent upon the anatomy of the same.

Certain tissues and cells have a certain physiologic function to perform, they must perform that function and no other should be expected of them.

The formation of the mucous membrane over the turbinates is there for the purpose of increasing the radiating surface of it. The turbinates are so arranged that the air current from the outside enters their funnel-shaped openings and is then broken up into several streams.

When all of these broken air streams have passed over the large area of this intensely vascular membrane, it has been filtered of its impurities which have lodged upon the filtering passages; it has been warmed or

cooled as the case may be, so as to arrive in the lungs at body temperature or nearly so.

The intake force of the stream has been properly retarded to prevent injury to the distending air cells. The impurities of the inspired air have lodged upon the mucous membrane which is supplied with mucous glands and ciliated epithelium. This ciliated epithelium possesses the faculty of always waving everything in an outward direction.

Whatever causes an irritation to this mucous membrane causes an increase in the performance of its physiologic function which is an extra excretion of mucus and an overactivity of the ciliae.

The sudden change of temperature from a hot room to the cold outside air immediately causes an increase of the flow of mucus; the deposit of dust, irritating substances, odors and bacteria cause the same phenomenon.

This is spoken of as "catching cold" whatever that means, when in reality it is an attempt upon the part of the economy to prevent something injurious from happening.

From the anatomical nerve supply we see that the nose or at least the upper part of it serves another physiologic purpose. Thus the branches of the olfactory nerve are distributed in this upper, "out-of-harms-way" place to receive the sensations which are to be carried to the olfactory center.

While the development of this special sense of smell is in every way desirable, in the human being it is not a necessity.

Nature abhors anything that is not necessary or useful and so the sense of smell in the human being has been more or less obtunded. If, however, the noxiousness of anything is great enough, we receive certain warnings that such substances are not desirable for the lung or the intestinal tract.

It is for that reason that we find a branch of the sympathetic ganglion emerging from between the eighth and ninth vertebrae connecting directly with the Schneiderian membrane. It is there to warn us by the sense of smell that whatever is not good for the intestinal tract should not pass further than the nose.

Another physiologic function, and this includes the entire nose, is to act as a sounding chamber to give resonance to the voice.

For this purpose the nasal chambers must be free so as to emit the voice without hindrance.

One frequently hears the remark that so and so talks thru his nose. Whenever that remark is made, it is a sure sign that so and so does not talk thru his nose, for that is just what we all should do, but many of us cannot.

There may be other functions, but for our purpose interference with these enumerated ones will be all sufficient.

The mucous membrane lining the nasal fossae is called the Schneiderian membrane. Schneider pointed out the fact that the secretions of the nose proceeded from the mucous glands and not from the brain.

The mucous membrane is continuous with the mucous membrane of the eye thru the nasal and lachrymal duct, with the membrane of the tympanum and the mastoid cells thru the Eustachian tube. It is further connected with the frontal, ethmoidal, sphenoidal and the antrum of Highmore thru the several openings in the meatuses.

It is a continuation of the mucous membrane of the bronchial tube and thru the esophagus with the gastrointestinal tract.

The mucous membrane is thickest and most vascular over the turbinated bones, fairly thick over the septum but thin between these and the floor of the fossae.

Near the orifice, where common sensation is chiefly required, the epithelium is of the pavement variety, but in the rest of the nose, all that portion of it engaged in the function of respiration, the mucous membrane is covered by *columnar ciliated epithelium*; this applies also to the passages leading to the various sinuses.

In the olfactory region the epithelium is columnar but not ciliated.

The mucous glands, while differing in size, according to the location, are evenly distributed thruout the membrane.

The nerves are the olfactory, the nasal branch of the ophthalmic, anterior dental, superior maxillary, the Vidian, nasal palatine or nasal branches from Meckel's ganglion.

The sphenopalatine or *Meckel's ganglion* is the largest of the cranial ganglia. Like other ganglia it possesses a motor, sensory and sympathetic root.

Meckel's ganglion communicates by two ascending branches with the superior max-

illary branch of the fifth or trigeminal, which comes from the Gasserian ganglion.

Etiology—Pathology.—As the physiology is the result of anatomical structure, so is the pathology the result of interference with physiologic function or due to structural anatomical changes.

Our principal pathologic condition to be considered is inflammation of the mucous membrane of the nose and pharynx, in other words catarrh of the nose.

Morell Mackenzie considers two principal causes for this affection: first, foreign matter, such as dust and bacteria lodging upon a mucous membrane; second, the habit of fast eating and drinking.

Dr. Freudenthal, on the other hand, considers only dry, overheated, badly-ventilated rooms.

From the anatomy and the subsequent physiology it must be apparent that both of these writers are correct.

We will therefore say that anything that is capable of acting as a long continued or oft repeated irritation to the Schneiderian membrane must eventually cause thru overactivity a hypertrophy.

Neither is it necessary that this irritation affects primarily the mucous membrane of the nose; chronic constipation will sooner or later cause a colitis, this by direct contiguity as well as thru the sympathetic fibres from the ninth dorsal interspace connecting with the Otic and Gasserian ganglion will produce a similar condition in the mucous membrane of the nose.

Pulmonary tuberculosis usually causes an overactivity of the respiratory tract by direct extension of the inflammation or thru the sympathetic fibres reflexly.

Any one of these or all of them acting in concert produce a hypertrophy of the mucous membrane. At first, as a direct result of the enormous increase in the vascularity we have a pouring out of mucus in abundance and the patient complains of nothing worse than a running nose.

If this process is long continued there is a gradual extension in all directions. The discharge, instead of finding its way out by the natural channels, now drops into the nasopharynx; it accumulates in the upper and posterior portion of the nose, invades sinuses and the patient complains of frontal headaches.

When this pain is located at the brow

and bridge of the nose it is almost pathognomonic that it is due to gastrointestinal and secondary nose involvement.

The accumulation of mucus laden with bacteria and detritus is especially marked upon awakening in the morning and is always worse if the patient has been imbibing in spirituous liquors the night before.

By gradual extension of the process the entire nasopharynx becomes involved and the Eustachian tube shares in this process.

Either the opening of the tube becomes filled with mucus or thru swelling of the parts becomes occluded.

At this time the patient complains of noises or ringing in one or the other ear. These noises may be relieved by forcibly blowing the nose, only to return again soon after. If this forcible blowing of the nose is persisted in or if Valsalva's method of inflation is practiced, there is every possibility of forcing some of the germ-laden mucus into the stenosed Eustachian tube and thereby lay a foundation for a future otitis media.

Assuming that this does not occur on account of complete closure of the tube, then the air contained within the same is gradually absorbed, the tube collapses thruout its entire length with the result that we have a more or less of a vacuum on one side of the membrana tympani and the air pressure of fifteen pounds maintained on the other side. The changes are self-evident. The ear drum is bound to bulge inward from the external air pressure and the decreased resistance on the inside.

This bulging drives before it the ossicles which finally communicate thru the stapes with the fenestrum ovale. Not only have we now the extension of the inflammatory process from within, but the added factor of pressure in all of the articulations of the chain of ossicles.

It is true these bones and joints are very small, nevertheless they are articulations and obey the laws of pressure as much as the knee or the elbow joint.

A very little pressure, but long continued, sets up an interarticular inflammation which causes adhesions and stiffness.

At this time the patient complains of acute hearing, in fact slight noises and sounds inaudible to other people are not only magnified, but are distorted.

With a susceptible person these sounds

are interpreted as "some one calling them, or as some one talking about them."

The rest of this story does not concern us here, but I am satisfied from my contact with patients in the Manhattan State Hospital that only too many started on their way across the river, thru nothing more than an unrecognized nasal catarrh.

If the progress continues retrogression takes place. Nature abhors anything that is useless. A tympanic membrane that does not vibrate, a chain of ossicles that do not move, require little or no blood supply. Atrophy causes a drying and blanching of the ear drum and instead of giving that shiny, mother of pearl appearance, we see a bony, lusterless or chalky membrane. At the same time we have an atrophic mucous membrane in the anterior portion of the nose while in the posterior we have a hypertrophic rhinitis with more or less loss of hearing in one or both ears.

Such is the clinical pathology of a case of catarrhal deafness.

Treatment.—Physiologic function is based upon anatomic construction. Pathology is the deviation from the normal of either one of these, while treatment has for its object the removal of the cause and the restoration of physiologic function and anatomic structure.

Pathologically we are confronted with an atrophic or hypertrophic mucous membrane functioning abnormally, a chain of bony articulations having become ankylosed as a result of pressure; the pressure due to a relaxed ear drum with a positive pressure on the outside and a negative pressure on the inside the membrana tympani is atrophied and non-vascular; the Eustachian tube may be either open, narrowed or closed.

In enumerating the treatment I shall confine myself to personal experience only.

There is no doubt that all of this treatment has been advocated by others either fragmentary or in whole; neither is this treatment a fixed one, but must be varied as the circumstances demand.

I shall also assume that the case is one which falls into this category, thereby barring complications or unsuitable cases.

The normal discharge from the nose is alkaline. Any kind of an alkaline solution as a ten to twenty per cent. solution of

bicarbonate of soda will dissolve the mucus whether thin, viscid or even crusts.

An ordinary nose spray is used, the patient vigorously uses the handkerchief or a good sized piece of cheesecloth. I have no cuspids in my office, they are unclean, disgusting and unnecessary.

As soon as all the mucus has thus been removed, if there is atrophy present an oily solution of iodine is then blown into the parts from a vaporizer. If hypertrophy predominates an oily solution of acetozone is in the same manner vaporized. The iodine irritates and stimulates tissue increase and is a good germicide. The acetozone is a sedative to the mucous membrane, at the same time a germicide and antiseptic anodyne emollient.

When the nasal mucous membrane has thus been prepared the patient is treated electrically.

If atrophy is present, the stimulating action of the vacuum high-frequency tube is used; if hypertrophy prevails, then the heating tissue contracting-effect of the diathermic current is indicated.

Assuming that the hypertrophy has so occluded the nasal fossae that these electrodes will not enter, we have resource to electrolysis. Two, three or more fine cambric needles are attached to the negative pole of the galvanic current and inserted into the hypertrophic tissue. The electrolysis takes place between the cartilage and the mucous membrane; immediate shrinking is the result.

It will be noted that in all of these procedures the physiologic integrity of the parts is strictly preserved, so that the mucous membrane of the nose and pharynx is in a condition to perform a normal physiologic act.

Having cleared the nasopharynx we can give our attention to the ankylosis of the ossicles. An ankylosis is a certain condition of bony joints, no matter where situated. We treat this ankylosis the same as an ankylosis of the elbow. Our agents in either case are dry heat and passive motion.

From an instrument devised for this purpose, a stream of dry, hot air is forced against the drum membrane and the adjacent parts. The instrument must fit snugly into the external auditory canal and by a vacuum pump arrangement this hot air is

blown into the canal, then again withdrawn to the point of forming a vacuum.

In this manner the ear drum is made to vibrate and thru its attachments with the ossicles they are loosened up, thus returning the parts to their normal anatomic and physiologic condition.

The membrana tympani is next treated. The external canal is freed from all fats by a thoro washing with a warm alkaline soap-water solution. The patient is placed in a horizontal position and the ear filled with a warm, clean alkaline solution. A small piece of rubber tubing is inserted into the external canal almost up to the ear drum. The negative pole of the galvanic current is placed into this rubber tube. The contact with the ear drum is made thru the water.

The positive pole is placed in the nape of the neck. The current is turned on slowly up to one half of a millampere; gradually as tolerance has been established it is increased to one or even two milliamperes for at least fifteen minutes.

This procedure has the effect of softening and again revascularizing the membrane.

During this treatment, which lasts from three to six weeks, the patients frequently complain of increasing deafness due to the softening of the membrane; this regulates itself as soon as normal and efficient circulation has been re-established.

The Eustachian tube is the last to receive direct attention, for frequently this is made unnecessary by the treatment of the adjacent parts.

The most common condition is stenosis of the tube. A Eustachian catheter attached to the negative pole, and under the guidance of the operator's eye, is inserted into the opening in the pharynx. One quarter to one half of a millampere is allowed to flow for five minutes. This procedure is continued until the canal is entirely patulous. All the parts are now anatomically and physiologically again intact. Patients that could not hear an alarm clock tick one inch from the external meatus, frequently, after such treatment, can hear a watch tick six to twelve inches from the affected ear.

Papilloma, Warts, Verruca.—Structurally all warts are practically the same,

tho they may differ in shape and location; they are essentially an affection of both sexes, rather more frequent during early youth or up to puberty and again in advanced age as after 60. When these warts appear during early youth, they frequently disappear again without treatment, but if they remain or are a disfigurement, or when they make their appearance late in life as senile keratosis, then they should be removed.

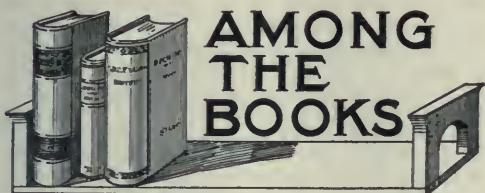
Treatment.—The *positive* pole of a galvanic current is attached to a properly moistened pad and applied in the immediate neighborhood of the wart. The negative pole is attached to a terminal possessing several bifurcations, each of which is armed with a fine cambric needle. When everything is in readiness a piece of paper, which has been perforated to just enclose the wart, is placed over the growth in such a manner that the wart projects thru the opening in the paper. One needle is then passed thru the base of the wart transfixing it and resting upon the paper, then as many needles as the base of the growth will permit are now inserted, all upon the same level and close down upon the paper. When a sufficient number, three to five needles, are in position, the current is gradually turned on up to the point of tolerance which will be about one and one-half or two milliamperes. This strength should be maintained for about thirty seconds and the current gradually reduced to zero. The needles can now be removed very readily on account of the negative electrolytic decomposition that has been going on. The top of the wart will dry up, form a scab and in the course of a week drop off, leaving a perfectly smooth surface with seldom a return of the original.

Accessory Treatment.—The high-frequency current, the D'Arsonval or the Oudin type may be successfully used for the destruction of warts, nevi and other superficial growths.

An instrument devised by the author known as the Geyser Fulguration electrode consists of a thin copper wire about 5 inches long concealed within a glass tube, ending on one end with a glass ring thru which the index finger of the right hand is passed, the thumb and middle finger of the same hand holding a glass tube thru which the first tube containing the wire is passed. This instrument acts on the prin-

ciple of a piston and cylinder and so arranged that when the outer cylinder is placed over a wart or similar growth, the inner piston carrying the wire is plunged up and down as required by a movement of the index finger thru the ring of the piston. To one pole of the D'Arsonval current the wire of the instrument is attached. The outer glass shell or cylinder is now placed over the area to be treated, the inner piston is raised so that no sparking occurs. The spark gap on the coil should not be more than $\frac{1}{4}$ of an inch apart. Gradually allow the wire to approach the skin so that a few fine sparks fall now and then upon the area. In the course of $\frac{1}{2}$ a minute the part will be almost anesthetic when the wire may be lowered to its full length. This is so arranged that a collar on the cylinder allows the piston to descend to within $\frac{1}{16}$ of an inch upon the skin surface. Thru this $\frac{1}{16}$ of an inch a very hot spark passes which at once destroys the tissues beneath it and, strange as it may seem, with very little pain to the patient. A successive number of such contacts should be made, each contact lasting not more than $\frac{1}{4}$ to $\frac{1}{2}$ second each. The wart or growth will at once become blanched, form a blister, which when it heals leaves a smooth scar. With larger or deeper growths this fulguration may have to be repeated at weekly intervals. Freezing with CO₂ of carbon dioxide is less painful and when convenient may be substituted. A solid stock of CO₂ is made, about the size in diameter of a twenty-five cent piece and three or four inches long. The end is then shaped to the size of the lesion to be treated and moderate pressure is made for about 30 to 60 seconds. Upon removal of the contact the parts beneath will be frozen hard; in a few minutes, say 30, a blister will form with much the same subsequent results as the high-frequency current application. In certain superficial lesions, among them lupus erythematosus, the results from the CO₂ contact are very encouraging, and not quite as painful as the fulguration methods. The application of caustics or strong acids should only be mentioned to be condemned.

Rheumatism.—Bromide of ammonia stands in high repute for acute rheumatism, and the chloride for myalgia.—*Med. Summary.*



Hygiene of the Eye.—None of the special senses of the body is more greatly missed than that of sight and therefore on account of its preciousness it should be conserved in every way possible. However, not only is sight neglected and abused but the hygiene of the eye is not properly understood by, perhaps, the majority of medical practitioners. While to acquire a thoro knowledge of the eye, its diseases, abnormalities and so on, requires very close and assiduous study, and while ophthalmology is one of the most difficult of the specialties, nevertheless, it behooves the general practitioner to know something about the eye and its common diseases. *Hygiene of the Eye*, by Wm. Campbell Posey, A. M., M. D. (J. B. Lippincott Company, Philadelphia), is written with the idea of imparting information concerning the more frequent affections of the eye, as well as to describe the manner in which the general health affects the eye, and also how the health may be influenced by eye-strain. A considerable part of the book can be read and understood by teachers and parents, and hints gathered therefrom with respect to the best means of safeguarding the eyes of scholars and children. In addition, the whole question of blindness and disease and conditions leading thereto are exhaustively discussed by Dr. Posey. Moreover, the movements that are being made for the prevention of blindness, which after all is the most important phase of the subject, are amply dealt with. Particular attention is paid to industrial blindness, and to measures for its prevention. This is timely, in view of the ever-increasing number of injuries to the eye which occur in foundries, factories and elsewhere.

Four chapters of the book are written by well-known ophthalmologists and these will appeal to those with special knowledge. The bulk of the book, however, is devoted to the hygiene of the eye purely and simply and of course is especially concerned with means of prevention. The work is eminently practical and because of its common sense is well calculated to effect the object of its author in writing it, namely, to instruct general practitioners and to a less extent parents and teachers in the most satisfactory methods of conserving eyesight and in warding off the most common disease of the eye. The illustrations are numerous and good.

Nutrition.—Rapid advances have been made in the development of nutrition, and those who persist in applying the theory of calories and distribution of proteins, fat and carbohydrates in the dietary without reference to other ele-

ments have not kept pace with dietetic advances. E. V. McCollum, in *The Newer Knowledge of Nutrition* (The Macmillan Company, price \$1.50), presents the results of studies covering many years, in which the biologic test of food has been given greater value than mere chemistry. The studies of McCollum and his coworkers indicate the importance of at least two unknown dietetic factors termed by him "fat soluble A," and "water soluble B," because of their solubility in fats and in water respectively. The description of the dietetic experiments, together with the analysis of the nutritive values of various types of foods such as the seeds, leaves, fruits, roots, tubers, as well as meats, eggs and milk, point out the recognized variations in the quality of protein as affecting nutrition, and indicate the necessity of utilizing milk and the leaves of plants as protectives of nutrition.

His emphasis upon milk, eggs and the leafy plants as protective foods stresses the necessity of a dietary regime which cannot be satisfied by merely ingesting seed products, tubers, roots and meat.

It is important to note the high value which he places upon the use of milk in the dietary, and his belief in moderate prices of this commodity in order to insure the proper nutrition of the people. The main contribution, however, is the appreciation for which he pleads of the biologic properties of foodstuffs as over against the mere understanding of their chemistry. He is more concerned in what part food actually plays in nutrition than in its theoretic chemical composition and the deductions following therefrom as to its place in metabolism.

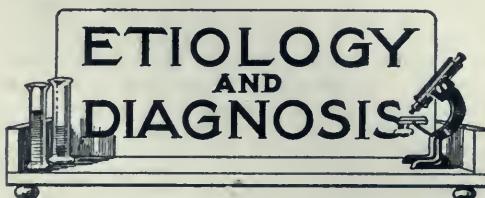
Obstetrics.—The history of this colossal work on obstetrics is interesting and again points the moral that great things often have small beginnings. This, the third edition of the *Principles and Practice of Obstetrics* by Joseph B. De Lee, A. M., M. D. (W. B. Saunders Company, Philadelphia), is the outgrowth of a volume entitled *Notes on Obstetrics*, and used for fourteen years as a text-book by the junior and senior classes at the Northwestern University Medical School. In the compilation of the book, two main objects have been always kept in view: *first*, the needs of the general practitioner and, *second*, the needs of the student, and while purely scientific subjects are adequately dealt with, their direct bearing on daily practice is the point which is clearly emphasized. In accordance with the scheme of rendering the book first and before all of practical value, diagnosis has been made a particular feature, and the relations of obstetric conditions and accidents to general medicine, surgery and the specialties have been fully brought out. However, as this is a third edition it is somewhat superfluous to dwell upon the scheme of the book, and it will be more in order to consider briefly the revisions, amplifications and elaboration of the present volume. The war had the effect of hindering in some degree the progress of obstetrical knowledge. But as Dr. De Lee points out in

the preface this has not been an unmixed evil, because thereby the opportunity has been afforded not only to test the recent contributions to science, but for experience to prove the good and to eliminate the worthless.

Most of these contributions have stood the test, while some of them have acquired new valuations. Many of the subjects have been amplified and in the treatment of eclampsia, greater attention is paid to conservative methods. Dr. De Lee was fortunate in one important direction; thru the kindness of Mrs. Ira Nelson Morris, wife of the United States Ambassador to Sweden, Dr. Erik Ahlstrom of Stockholm and Privat-docent Dr. Paul Hussy of Basel, Switzerland, he was enabled to procure practically all of the continental obstetric literature which, otherwise, owing to the war would have been inaccessible.

The illustrations are graphic and artistic and the book reflects the greatest credit upon the author and publisher.

Home and Community Hygiene.—In the desire to enlighten young and old in the purposes and methods of personal hygiene and public sanitation, numerous authors have sought to produce in popular note a general text-book. Among the volumes which may be regarded as having approached the problem most successfully, none is superior to *Home and Community Hygiene*, by Jean Broadhurst (J. B. Lippincott Company, price \$2.00 net). With a comparative freedom from technical terms, the entire gamut of public health problems is covered with unusual brevity and accuracy. The relation of individual health to public welfare is carefully presented in its most practical aspects and without redundancy or deadliness in exposition. The author, being a biologist, attacks her subject with all the care and precision of a scientist, but her efforts are strengthened by the evidence of a profound pedagogical sense which has enabled her to present a volume that will be most helpful to teachers, while at the same time meriting a valuable place in the reference library of any home.



Two Signs in Chronic Appendicitis.—Morris in the *N. Y. Med. Jour.*, Feb. 15, 1919, stated that two signs belonging to the sympathetic and autonomic nervous systems were of prime importance in making a differential diagnosis between chronic appendicitis and other affections of the abdomen and pelvis. These two signs did not belong to acute appendicitis. As a result of the chronic irritation of the appen-

dix, impulses were registered upon the second and third right sympathetic lumbar ganglia known as the fused ganglion, in such a way that it became hyperesthetic. Deep pressure upon the abdomen about an inch and a half to the right of the navel and a trifle below brought out this hyperesthetic point which constituted one diagnostic sign of importance in differential diagnosis. The other sign consisted in permanent distention of the ascending colon. It was what he called the cider barrel sign. Percussion upon the normal left side of the abdomen brought out a note suggestive of the cider barrel in October and percussion over the right side of the distended ascending colon brought out a percussion note suggestive of a cider barrel in March. This chronic disturbance of the ascending colon was apparently caused by exhaustion of its sympathetic innervation due to chronic nagging from the irritated appendix.

Gall-stone Disease Complicating Pregnancy.

—The cause of gall-stone disease is not definitely known. Heineck (*Med. Times*, Feb. 1919) states that numerous theories have been advanced; not one has, as yet, been found worthy of general acceptance. The following three factors, owing to their frequency previous to or during the existence of gall-stone disease, impress one forcibly as being important predisposing causes. In the individual case, one, two, or all of these three favoring influences may be operative:

- Conditions associated with, favoring, or causing biliary stasis.
- Inflammatory states of the biliary tract, primary or secondary to local disease, or to some general febrile state.
- Regimens or diatheses favoring or causing hypercholesterinaemia.

Cholesterin, the principal component of gallstones, is derived from the bile. Simple biliary stasis can, thru the precipitation of cholesterin, lead to cholesterinstone formation. Precipitation is prone to occur in inspissated bile, and the elements thrown down may lead to stone formation. In the later months of pregnancy, the abdominal muscles and the diaphragm contract feebly, and the bile, being inefficiently expelled, stagnates in the gall-bladder.

Stasis, in addition to separating out the essential constituents of gall-stones from the bile, favors the growth of bacteria in the residual fluid. According to Sherrington, bacteria cannot enter the bile ducts, as long as the bile is expelled at regular intervals. Bile is not an antiseptic; it does not prevent the development of bacteria; left exposed to bacterial contamination, it undergoes putrefaction. Obstruction to the bile outflow may be due to foreign bodies present in the gall-bladder or, in the larger bile ducts, may be determined by inflammatory or other degenerative changes involving the gall-bladder or the bile ducts, or may result from such pathologic states of contiguous organs as lead to impingement of one or more of the latter upon the bile ducts. Obesity, sedentary life, constipation, tight clothing, such as ill-

fitting and improper corsets, etc., are held by some to be predisposing factors. Miyake believes that the non-wearing of corsets by Japanese women is one of the principal reasons why gall-stones are so infrequent among them.

Bacterial organisms are said to be the most essential cause in the majority of cases of gallstones. In this connection one should not ignore the relation of mouth and teeth infections to appendicitis and cholecystitis. In some cases, supplementing the noxious influence of bile-statins, in others acting independently, in many acting conjointly, there is present a bacterial inflammation of the mucous membrane of the gall-bladder, of the bile ducts, or of both. If the stone be of aseptic origin, the abnormal element lies in the composition of the bile; if the stone be of inflammatory origin, the pathologic condition is the cholecystitis or catarrh of the gall-bladder.

The Etiology of Trigeminal Neuralgia.—According to an editorial writer in the *New York Med. Jour.* (July 13, 1918), modern medicine tends more and more to limit the rôle of symptomatic treatment and to increase that of the etiologic, and, since both means are resorted to for the cure of trigeminal neuralgia, it is evident that there are both known and unknown causes of this dire affection.

Among the general causes, by far the most important, because the most frequent, is luetic infection, which should always be looked for in every case of neuralgia of the seventh cranial nerve.

In cases where doubt exists, there is a quite constant characteristic offered by syphilis, namely, an increase in the intensity of the pain during the early hours of the night, while if the neuralgia is bilateral it is probably due to a specific lesion at the base of the brain. Malaria is a potent source of facial neuralgia, but unfortunately far more obstinate to treatment than when syphilis is in play. It might seem as if the symptoms, when having a malarial basis, should offer an intermittent character in the majority of cases, but such is not the case. The pain is quite as much continued as paroxysmal, altho we have a series of phenomena which will, perchance, facilitate the etiologic diagnosis. We refer to the vasomotor disturbances, conjunctivitis and epiphora.

Of chlorosis, the various neuroses, and diabetes, as etiologic factors of facial neuralgia, little mention need be made, as the subject is generally fairly well known, and the same applies to gout, rheumatism, and various intoxications, particularly from nicotine and carbon dioxide. Alcohol does not appear to be a direct factor in the causation of trigeminal neuralgia, but is undoubtedly often an adjuvant cause.

The local causes are numerous, but to diminish their influence all that is necessary is to place the patient in suitable hygienic surroundings, after which the local etiologic factors are to be considered. After removal of teeth, the condensing periostitis arising in the empty

alveoli may include the nerve endings, and this neuralgia of edentates is rapidly done away with by resection of the alveolar borders. A badly fitting plate of teeth or a tooth with an exposed pulp, a badly fitting artificial eye in contact with the inflamed and painful ocular stump, and the various otitides are all causal factors which should never be ignored.

In other cases the causes will be more direct. Among them may be mentioned periostitis, or osteitis of the osseous canals existing along the track of the nerve, resulting in compression of the trunk. Neoplasms and sinusitis occupy an important place in this respect, while less frequently the casual factor may be an irritation of Gasser's ganglion by an aneurysm of the internal carotid or a neoplasm at the cranial base.



Severe Chronic Diarrhea.—Düring (*Correspondenz-Blatt für Schweizer Aerzte*,) Dec. 21, 1918) describes cases, in a girl of 10 and three adults, which in many points resemble the severe alimentary diarrhea of infants. One man of 44, a prisoner of war in Germany, developed severe chronic diarrhea with great depression, but no pains or fever. No benefit was derived from tannin or opium preparations or charcoal. A bleeding bunch in the rectum was assumed to be cancer and the man was sent to Switzerland to be interned, where the rectal lesion subsided under silver nitrate. In all the cases in this group there was a history from youth of substandard digestive functioning, and the patients showed a tendency to anemia, meteorism in the upper abdomen, and a gray tint of the skin. The stools in each case showed defective digestion of carbohydrates, the high acidity testifying to abnormal fermentation, which was responsible for the meteorism and the excessive peristalsis. The correctness of this assumption was demonstrated in each case by the benefit from dietetic restrictions, avoiding carbohydrates. Any meal of potatoes or tapioca was liable to bring back the diarrhea. Carbohydrates have to be banished as completely as from the diet of diabetics. Further all cellulose-containing foods have to be scrupulously avoided. Lean meat, fish, eggs, cheese and cane sugar have to be the sole reliance. Coffee and tea with cream can be allowed, but no milk on account of its lactic acid content. Kefir is very useful. It is better to warm it. In the very severe cases, albumin milk may have to be resorted to.

He begins treatment with a purge, allowing only black tea, and for two or three days only fluid food. He warns expressly against gruels. The fluid stools soon stop and meat and eggs

soon bring putrefaction bacteria to predominate. In a few days the stools become formed and alkaline. In obstinate cases, calcium chlorid may hasten this transformation of the reaction. The amounts of the foods allowed can be rapidly increased and after a few weeks, zwieback and flour dishes may be cautiously allowed under constant supervision. Noodles, grits and rice may be taken without harm in time, but the intolerance for potato long persists, and it may bring on the gravest relapses. Institutional treatment is almost indispensable, even more so than for the graver cases of diabetes. Medicinal treatment is of little use except that opium may aid at first in checking the exaggerated peristalsis. With ulcerative colitis it can be given with belladonna by the rectum. Morphin may be useful to quiet the excited patient. After recovery, the patients long have to beware of foods containing cellulose. A limit of tolerance is finally reached, and keeping within this they have no further trouble. His patients in this group have been free from all disturbances for months.

Acne Vulgaris.—It is a well known fact that this is a very obstinate disease to treat in many instances, and Miller (*Urologic and Cutaneous Review*, July, 1918) recommends that the scalps of these patients be examined very carefully. When the scalp shows seborrhea a preliminary shampoo of a solution of potassium carbonate (14.2 grams to the litre), followed by the use of green soap tincture once a week and the daily use of a sulphur pomade, should be employed. The following is a good formula:

Sulphur precip.	.....	dr. i;
Sodii babor.	.....	dr. v;
Aqua rosæ	.....	dr. iii;
Cerate alba.	.....	dr. i;
Petrolatum	.....	dr. v.

All comedones are to be carefully expressed. Before expressing them it may be well to apply a hot towel to the face for a period of ten minutes. Pustules must be opened and drained, best done with a von Graefe cataract knife. The hyperkeratotic layer must be removed by sulphur. One of the best preparations is lotio alba. When stimulation is evidenced by a mild dermatitis, cold cream or calamine lotion should be substituted. Vaccine treatment is used at times. If the acne vaccine uncombined does not give results, the staphylococcus vaccine may have to be added. The initial dose should be five million of the acne vaccine, which is increased to one hundred million. The initial dose of the staphylococcus vaccine is one hundred million, which is increased to a billion or more. For acne indurata or blind boil, Bier's suction cup should be used. The diet should be carefully restricted. Plenty of water should be taken between meals. Exceptionally the X-rays or the Kromayer lamp may have to be employed.

Resting the Veins, A Simple Expedient.—A writer in the March *Med. Council* says it is

curious how an expedient that one has used for years will suddenly become a matter of great interest to several men at the same time. The matter is so very simple that it was never put upon paper until now, tho the patients that have been helped by it were many. When the walls of the veins become a little dilated, if they are rested they may regain some of their tone; but since only too often they are never rested, dilatation is slowly progressive. If one has rather large veins upon the back of his hand, if he lets that hand hang down those veins dilate, and if he raises his hand slowly to a horizontal position or in line with his shoulder those veins do not rest, but remain dilated. If one holds his hand vertically, or with straight arm toward the ceiling of a room, the veins will empty in a few minutes, and when the hand is brought down to the aforesaid position the veins remain empty and their walls rest.

When a person with a varicose leg goes to bed he usually sits upon the bed and draws his leg in after him. The veins of that leg are dilated and remain more or less so for hours, therefore the vein walls do not rest.

Let that person go to bed, hoist his feet up in the air, the higher the better, let him keep them there for five minutes and let him lower them slowly to the recumbent position. The veins are empty and the vein walls rest.

After a few weeks of this exercise many patients declare that their whole sleep is more restful.

The great value of the maneuver is shown after an operation for a varicose vein.

A New Incision for Appendectomy.—The number of incisions that have been brought forward for appendectomy from time to time, says Watson (*Annals of Surgery*, Oct., 1918), show that no one incision is adapted to all cases. Many writers have noted that in the cadaver the base of the appendix is found at McBurney's point, while in the living subject it is below this point, usually on a level with the center of Poupart's ligament. A number of operators have called attention to the ease with which the appendix can be removed when operating for right inguinal hernia. Since 1910, I have used a new incision, with its center over the base of the appendix, and believe that in many cases it is an improvement over those in general use.

Incision: A point one and one-half inches from the right anterior superior spine, on a level with a line connecting the two superior spines, is selected for the beginning of a vertical incision which extends directly downward for two to three inches to a point just above, and to the inner side of the internal abdominal ring.

Advantages: Traction to expose the appendix is avoided because this incision, in the external oblique and its aponeurosis, the most resistant structures, is directly over the base of the appendix. It can be enlarged without weakening the abdominal wall. The ilio-hypo-

gastric and ilio-inguinal nerves are not injured because the incision lies between them. Because this incision is made over the cecum, the small intestines do not crowd into the wound as they do when the McBurney and lateral rectus incisions are used.

Treatment of Tetanus.—The success of treatment lies in an early diagnosis. Twigg in *Therapeutic Gazette*, Jan. 15, 1919 says don't wait until lockjaw has developed before giving serum—5,000 units given early in a case is more efficient than 50,000 later when the symptoms have become general.

Four methods are commonly used for giving the antitetanus serum, namely, subcutaneous, intramuscular, intravenous and intrathecal.

The War Office Committee for the Study of Tetanus reports that in cases of acute general tetanus the best method is to give large doses of antitoxic serum intrathecally, repeated in two, three, or four days in succession and combined with intramuscular injections.

Very large doses of serum should be given; 50,000 to 100,000 units may be administered during the first few days of treatment.

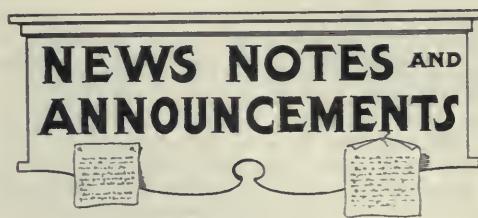
For the intrathecal injections it is advisable to withdraw 20 c. c. of cerebrospinal fluid and then to run in the serum. In no case is it to exceed 20 c. c. in amount; 16,000 units is the adequate single dose for the intrathecal injection. We should repeat the intrathecal dose daily for four days, at the same time giving supplementary doses, intramuscularly, of 8,000 units.

Treatment with magnesium sulphate is not advised, as some risk attends its use, and it is doubtful if it has any advantage whatever.

Treatment of Malaria with Quinin Hydrochlorid.—For twenty years Howard (*Jour. of Tropical Med. and Hygiene*. Jan. 1, 1919) has used the hydrochlorid and bihydrochlorid of quinin in the treatment of malaria. For routine prophylaxis he uses the hydrochlorid, either in tablet form or in solution, in which case he usually adds 1 minim of dilute hydrochloric acid to each grain of quinin to convert it into the bihydrochlorid. For the treatment of definite malarial pyrexia, he uses the bihydrochlorid. If a patient is very susceptible to quinin and complains much of tinnitus, this may sometimes be decreased by giving a few minims of dilute hydrobromic acid at the same time as the quinin. In the treatment of native infants with malaria, the tannate of quinin, given as a powder, in relatively large doses, has proved satisfactory.

Treatment of Chorea.—Odriozola (*La Cronica Medica de Lima*, Oct., 1918) still has great faith in Fowler's solution in doses up to physiologic effect. Attention is given to the intestinal tract; chloral for exaggerated movements up to thirty centigrams every four hours for a child of six years, and the salicylates, preferably aspirin, up to five or seven grams daily. Rest is of importance, especially absence from school, until all traces of the condition have disappeared.

NEWS NOTES AND ANNOUNCEMENTS



American Delegates to the Red Cross Conference at Cannes.—The following men have been invited to represent the United States at the Red Cross conference at Cannes, France:

Dr. William H. Welch, director, School of Hygiene and Public Health, Johns Hopkins University; Dr. Simon Flexner, director, Laboratories of Rockefeller Institute for Medical Research, New York; Dr. Herman M. Biggs, Health Commissioner, New York State; Dr. Edward R. Baldwin, director of Edward L. Trudeau Foundation for Tuberculosis, New York; Dr. Theobald Smith, director of Animal Pathology, Rockefeller Institute for Medical Research; Dr. Wickliffe Rose, director general, International Health Board Rockefeller Foundation; Colonel George Walker, U. S. Army, in charge of venereal diseases, A. E. F.; Colonel Homer Swift, U. S. Army, consultant in medicine, A. E. F.; Colonel William F. Snow, U. S. Army, President of Association of State and Provincial Boards of Health of North America; Dr. L. Emmet Holt, professor of diseases of children, College of Physicians and Surgeons, New York; Dr. Samuel McC. Hamill, professor of diseases of children, Philadelphia Polyclinic and College for Graduates in Medicine; Dr. Fritz Talbot, chief of Children's Medical Department, Massachusetts General Hospital, Boston; Dr. Livingston Farrand, director general, American National Red Cross; Major A. M. Garvin, chief, Bureau of Tuberculosis, A. R. C., France; Major William Palmer Lucas, professor of pediatrics, University of California; Colonel Richard P. Strong, U. S. Army, professor of tropical diseases, Harvard University Medical School; Assistant Surgeon General N. S. Cummins, U. S. Public Health Service; Colonel F. F. Russell, U. S. Army; Lieutenant-Colonel Lindsay R. Williams, U. S. Army.

Miss Delano Dies.—Miss Jane A. Delano, who died April 15, aged 56, at Base Hospital No. 8, at Sauvigny, France, was one of the foremost figures of the nursing world. Under her direction more than 30,000 nurses were recruited thru the American Red Cross for service with the Army and Navy after the United States entered the great conflict. Miss Delano graduated from Bellevue Hospital, New York, in 1886, and two years later volunteered to nurse yellow fever victims in Jacksonville, Fla. Altho at that time medical science had not decided that the mosquito was a yellow fever carrier, Miss Delano had reached that conclusion, and had insisted on the use of mosquito netting by her nurses with the most satisfactory results. In 1891 she was made superintendent of the nurses'

training school of the University of Pennsylvania, a position she held for five years, and in 1900 she returned to Bellevue Hospital to direct the nurses' training school there, continuing in the capacity until 1905. When the American Red Cross, following the final reorganization in 1906, entered into an agreement with the American Nurses' Association for the purpose of developing a nursing reserve for the Army Nurses Corps, Miss Delano was appointed chairman of the committee in charge of the work. She was also named as superintendent of the Army Nurse Corps by the Surgeon-General, in which capacity she visited the Philippine Islands, China, Japan and Hawaii.

Medical Reserve Corps Commissions.—Commissions in the Medical Reserve Corps are being offered to officers of the Medical Department who have been discharged from the service upon completion of their duties connected with the emergency. Under the law they cannot be returned to the inactive list of the Medical Reserve Corps, but must be discharged and reappointed in the reserve in order to continue their connection with the Medical Department. It is planned to build up a large Medical Reserve Corps and include all members of the medical profession who served creditably during the war. It is said that the policy governing these appointments is such as to insure that within the limitations prescribed by law every officer so appointed will receive rank at least equal to that held by him at the time of discharge.

Government Survey of Drug Addiction.—A special committee, composed of G. C. Keith, deputy commissioner in charge of narcotics of the Internal Revenue Bureau at Washington, Professor Reed Hunt of the Harvard Medical College, Dr. A. G. du Maz of the Public Health Service, Lieut.-Col. Pearce Bailey of the United States Army Medical Corps, and Representative H. T. Rainey of Illinois, appointed by the Secretary of the Treasury to make a national investigation of the drug habit, have recently submitted a survey. This report seems to show that native born Americans are more prone to the drug habit than other white races, and that the drug habit is more widespread in the United States than anywhere else on earth. In some parts of the country, notably in large cities like New York, Philadelphia and Pittsburgh, the liquor and drug habits were found to be gaining more victims side by side, while in other parts of the country, where prohibition had gone into effect, extensive use of paregoric and similar compounds containing morphine was discovered. In Jacksonville, Fla., 800 drug victims were found out of a population of 7,000. The number of drug victims in the United States is estimated at not less than 1,500,000. There is no part of the country without them and no State where the growing evil has not been a problem. The experience of the war shows that excitement and

overstimulation are responsible to some extent for the increase in the use of drugs. The report points out that if drug addiction is to be controlled the individual States will have to pass supplementary legislation, and thus far only three States have done this, namely, New York, Massachusetts and Tennessee. In seeking to prevent the drug evil from extending its grip when prohibition goes into effect the authorities at Washington propose to seek the closer cooperation of physicians.

The Drug Campaign.—Health Commissioner Copeland has made a formal protest to the prison commission that convicts in state institutions are receiving an uninterrupted supply of narcotic drugs. Another serious matter brought to the attention of the health commissioner is that a considerable number of transportation employees are drug addicts. Commissioner Copeland has offered the narcotic drug commission, offices and clerks in the department of health building, as no appropriation was made for offices for the State Narcotic Commission in this city. The announcement is made that no more clinics for the treatment of drug addicts will be opened by the health department at present and that the work will be confined to that of the Worth Street Clinic. Dr. Copeland emphasizes the necessity for physicians to continue prescribing for drug addicts with a view of effecting a cure. Walter R. Herrick has been appointed chairman of the State Narcotic Drug Commission. Statistics based on the histories taken from 214 drug addicts coming to the clinic show that most of them are unskilled workers. Thirty-four different pursuits are represented. At least 20 per cent. of the addicts are engaged in transportation work. Among this number were four physicians, one newspaper man and a school teacher.

A Creditable Course.—The U. S. Public Health Service is putting forth the most strenuous efforts to lessen venereal disease, and is enlisting the assistance of all physicians and druggists. The various state boards are cooperating most actively. The New York State Board of Health, for example, has established venereal clinics in the larger cities and towns and is conducting post-graduate courses in New York for the training of medical men to handle the work in these clinics.

In the belief that the syphilis situation could be handled better if treatment for the general public were made possible, Col. H. A. Metz, of the H. A. Metz Laboratories, Inc., New York, is offering to the government and to the institutions cooperating with the U. S. Public Health Service salvarsan and neosalvarsan at practically cost. Believing, as he does, in humanitarianism in business, he has extended these same low prices to all state and municipal institutions treating the general public, so that there may be no further excuse why the poor should not get the benefit of the best methods in the treatment of syphilis.

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Annual Meetings.—The month of June approaches, which, eugenically speaking, may be of interest because of the higher incidence of marriages but, which, medically speaking, possesses two marked advantages. It is the month of medical meetings; not merely the annual meeting of the American Medical Association and the meeting of the American Academy of Medicine, and the American Medical Editors' Association, and at least 15 other medical and surgical organizations, but various other organizations whose interests lie along economic and social branches indirectly related to medical practice. A second reason that June is of significance to the medical profession is to be found in the fact that June is the most healthful month in the year. Its mortality figures during 1916, for example, were 3,000 lower than the next lowest month, October.

There seems to be, therefore, a certain excuse for the doctor to arrange for a holiday during that period of the year when the public health appears to be in its most flourishing condition. Whether one lives in rural or urban sections, the month of June is alike favorable and should stimulate men's minds to thinking of self-improvement thru rest, recreation, genial companionship, and the interchange of professional views and opinion, either in halls of formal meetings, or around festive tables where companionable groups interchange experi-

ences and discuss theories of prevention or treatment of disease.

Annual conventions are to be considered as more than recurrent excuses for getting away from the trials and pressures of medical practice. In theory, at least, they should form part of the educational machinery of the profession. The programs do not always indicate that thought expansion is of the utmost moment. All too frequently, there is repetition of age-old topics to which practically nothing has been added during the year past. Nor is it, indeed, strange to find upon programs communications from those whose opportunities have been so narrow as to afford little basis for the type of communication for which a hearing has been asked. Still, all this occurs in the month of June, when sunshine and flowers, long days, and nearly cool nights give men a feeling of tolerance and aid and abet their willingness to endure many things far from their ordinary habitations and friends.

The medical convention is an occasion for renewing medical vitality, for perfecting old friendships and gaining new ones, for whole-souled living in the spirit of fraternity. The formal papers are on the programs; a few are heard by many, and many are heard by a few, but when the last ripple of applause has died on the day of adjournment, the success of the meeting is felt. It is known by that greater thrill of pleasure which each man feels as he takes

away with him the pleasant memories of a few days of recreation, companionship, cordiality, and a sense of self-betterment, not born of isolated experience, but from a permeation of the mind with a greater appreciation of the meaning, the power, and the possibilities of the medical profession.

based at \$100 for adults and \$50 for children; (2) the value of life lost at \$3,000 for an adult, and \$500 for a child; (3) the cost of care of those who recover including medical service for adults. Utilizing the same figures for the few above named diseases in a computation on the basis of the United States mortality figures for 1916, the death losses from these ten diseases (poliomyelitis not included) amounted to approximately 570,000,000 and the losses due to medical care and wages to approximately \$1,087,000.

The recent epidemic of influenza involved at least ten million persons, with a mortality of approximately 400,000. Assuming that each case of illness involved only \$25 for medical care, the cost would be 250 million dollars. Inasmuch as the mortality from influenza involved approximately three persons of working age to one child, one may consider the average loss by death equivalent to \$2,400, and the funeral expenses at \$90, giving thus a total economic loss in vital assets of approximately one billion dollars. These figures, large as they are, take no account of the losses in production due to the pestilence, nor, indeed, of the cost of labor turnover due to the mortality of industrial workers.

These tremendous costs of communicable diseases may be regarded in part as an index of the economic efficiency of communities. It certainly does not reflect great interest or care in the conservation of the assets of the community to note the astonishing destruction of resources due to preventable communicable diseases. It is probably a shock to the conservative thinker about economic wastefulness to realize that the number of industrial accidents reported to the New York State Industrial Commission for the year 1917-1918 was 286,871, a num-

Losses from Preventable Diseases.—

While various attempts are being made to raise large sums of money to satisfy and maintain the government's honor by meeting the expenditures required by war, demobilization, and the consequent drains upon the Federal treasury, it is not perhaps unnatural to call attention to the yearly drains of the assets of the Nation thru communicable diseases. The *Illinois Health News*, of January, 1919, contains a most excellent estimate of the cost of illness and death from communicable diseases in that state. According to the estimates provided, illness and death from communicable diseases entailed a cost of \$24.67 per capita for each man, woman and child in Illinois. The general death rate was low, only 14.2, and the total loss from the principal preventable diseases amounted to \$15,881,685, or 6.01 per cent. of the total property value of the State. If this ratio of per capita cost were to apply for the entire United States, the loss during 1918 would amount to more than two and one-half billions of dollars. The Illinois figures, however, merely considered the cost of the following communicable diseases: typhoid, malaria, smallpox, measles, scarlet fever, whooping cough, diphtheria, meningitis, poliomyelitis, tuberculosis and pneumonia.

In computing the financial cost, four items were involved: (1) The cost of funerals

ber larger than the total casualties of our American Army, occupied in the strenuous work of conquering a pitiless foe. It is of the utmost significance that war, with all its atrocities, is probably responsible for little greater disease and disability during the period of greatest industrial activity than occurred during the ordinary years of conditions reflecting normal industrial activity.

Health must be estimated in terms of dollars and cents, in terms of productivity in order to reach the conscience of the average taxpayer, who must be called upon to defray the expenses of health departments and to meet the increased costs laid upon industry by virtue of the economic losses entailed thru sickness and death. The economic value merits greater attention, particularly at this time, when every effort is being made to secure the rehabilitation of the wounded and to increase the vigor and potential powers of those who have suffered from disease while pursuing their course as part of the military or naval forces of the nation. It must not be forgotten, however, that similar problems are of equal importance in connection with the every-day living of the growing nation, now bent upon renewing national prosperity and raising the standards of health, comfort and prosperity for all the types of citizens which comprise the nation.

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nical workers such as dietitians, anesthetists and laboratory workers. Some hospitals aim to develop a corps of persons able to do service in the community with social work, to offer personal nursing care of children, to act as aids in the guidance of the tuberculous, and to serve as assistants in the management of psychiatric cases.

With this large program constantly expanding under the urge of sociologic progress, it is patent that hospital standardization possesses many difficulties, as pointed out by A. R. Warner, *Journal of the American Medical Association*, March 29, 1919. He presents the obvious and important conclusion that some disinterested and impartial agency or organized group of agencies should be developed to accomplish hospital standardization so as to harmonize the interests and welfare of all groups of workers in hospitals such as the medical profession, the nurses, the dietitians, the social service workers, the dispensary staff and the internes. It is obvious that any scheme of standardization which is limited to a consideration of the problems of a single group of hospital workers will be entirely inadequate to satisfy all the needs for a high standard of hospital administration.

Dr. Warner stresses particularly the responsibility of hospitals along educational lines. The utilization of hospital facilities for the training of medical students, utilizing them as clinical clerks, the obligation to offer experience of a post-graduate character to graduates holding internships, and the provision of graduate medical instruction of various forms and degrees for all physicians represent the crystallization of the opinion that hospitals are not fulfilling their obligations to the community unless

Hospitals as Educational Forces.—Hospitals are no longer regarded as merely institutions for the care of the sick. Their potentials for education have been extended gradually so that they are now available for the training of internes, the education of nurses, for the rehabilitation of patients, for the training of various type of tech-

they are, in a greater or lesser degree, teaching institutions.

Hospitals are increasing in number, while, for the time being, the number of medical graduates is decreasing. It is very questionable whether the growth in the number of medical licentiates can possibly keep pace with the demand for internes in sufficient number to satisfy all the demands of modernized hospital administration. It is apparent that the internship is destined to undergo numerous alterations. The desire for greater knowledge will lead recent graduates to elect to enter institutions affording them the widest experience, with the minimum of routine involving little educational progress beyond an opportunity to perfect various types of technic. The evidence in this direction is further accentuated by the training of non-medical anesthetists and laboratory technicians who already are beginning to relieve internes of much of their routine work. From the standpoint of the patients it may be said that such innovations are to their advantage. No one will question the fact that a trained non-medical anesthetist, who is working under the direction of an attending physician, is more capable than the average hospital interne who, because of rotation in service, is obliged to perform the service of an anesthetist regardless of interest, inclination, or previous experience.

There is vital importance in considering whether it is desirable for graduates to immediately accept highly specialized services in hospitals. In all probability, a year spent in a general or rotating clinical hospital service possesses many advantages which will react to the benefit of the community as compared with an immediate plunge into a distinctly surgical or pathologic service. If it were possible to facil-

tate the arrangement of internships in small hospitals so as to permit a one year service of the general type, and then provide opportunities for specialization in a certain number of larger hospitals admitting of particularization in services, there would be a distinct educational benefit on the one hand and, in all probability, an improvement in the character of the training offered to the internes in both the large and the small hospital.

Clinical internships are not substitutes for internships, and the state of mental development of the average fourth year student is not sufficient to enable him to secure the maximum benefits from an internship. Unless there is ample supervision, his interpretation of the results of his clerkship does not suffice to advance his medical knowledge in the large, tho, of course, it is of most estimable assistance in perfecting his professional bearing, his powers of analysis, his ideas of pathology, and his ability to develop a coherent idea of the nature, course and treatment of the specific diseases assigned to him for investigation.

A Fifth Year in Medicine.—From the standpoint of practicality, it would probably be advantageous to demand a fifth year in medicine with the last year spent in a general or rotating internship in an institution under the guidance and advice of some sponsoring medical institution. The general attitude of hospitals towards internes would be greatly improved if there were a greater appreciation of their capabilities and responsibilities along educational lines. The stimulation of medical progress which would result from a plan of this character should be manifest in greater care in the selection of hospital personnel, in improvement of equipment, in the establishment of

laboratories of various kinds necessary to modern medical practice. The interne would remain a student, subject to the criticisms, markings, correction and discipline customary in institutions of learning. The professional staff of the hospital would assume a new dignity in the recognition of their position as acknowledged teachers. The entire plane of hospital management would be raised, because of the closer touch with the sponsoring medical college. Some program of this character will undoubtedly be required in order to make ample provision for satisfying the needs of hospitals within the next few years.

The medical colleges are awakening to the importance of raising the standards of medical practice and are keen to have their graduates secure positions in hospitals, tho it is impossible for them to make adequate provisions of their own initiative for all their graduates. Nor is it now regarded as part of their function to assist or guide men in discriminating among the various hospital positions open to the medical neophyte. If some large institution, or group of medical colleges were to undertake to extend their teaching power and to offer their facilities, advisory and supervisory, to a number of small hospitals with a view to constituting them as the laboratory for hospital training, there would be a marked growth and improvement in the system of hospital training now available. There is little reason to believe that small hospitals would refuse such an opportunity to raise their educational standards.

When hospital standardization is finally effected, there will be a weakness in the program unless provision is made for a minimum standard of educational facilities to be available for students in every line of medical, nursing, laboratory or adminis-

trative branch involved in medical practice or hospital organization. Hospitals are not merely places where operations are performed or children are brought into the world, or where those afflicted with chronic diseases may have shelter until relief comes. The hospital of the future is to be a vital educational force, reflecting its interest in patients, in families and in communities which they aim to serve. One of its strongest levers for activating communities into better health lies in a higher standard of educational qualification and educational practice.

One Piece of War Service.—In contemplating the resourcefulness of America during the recent conflict, it is helpful to assess the value of performances by specific institutions which promptly diverted their personnel and equipment from civil to military problems. In this connection, the activities of the Rockefeller Institute present a striking example of adaptability and capability. Founded for the purpose of promoting medical discovery thru research, it readjusted its numerous activities and placed all of its facilities on a war basis. The character of the work which it performed is most estimable and served to make the horrors of war less continuous and less devastating.

The curative serums for epidemic meningitis and one of the forms of pneumonia were continuously produced, while an anti-dysenteric serum was manufactured in quantity. The most important development, however, was the discovery and production of the antigaseous gangrene serum for the prevention of *B. welchii* infection, which was made possible by the researches of Major Carroll G. Bull of the Institute staff.

The protective properties of this serum have been thoroly demonstrated, and thus another link has been forged in the armor of preventive medicine.

Studies have been made concerning the efficacy of prophylactic vaccination against pneumonia and experiments would indicate that such vaccination may be effective against infection with pneumococci, types I, II, III.

A new drug for the treatment of syphilis has been perfected and tests of its action and the best method of administration are now being carried out. If this chances to prove successful we shall have an American drug which may supplant salvarsan in this country.

Laboratory studies, begun before the war, have sought to combat hemorrhage, and to-day there are available the injections of sterile solutions of gum arabic or the injection of citrated blood corpuscles as a means of combating both shock and hemorrhage.

Acetone plays a small part in the technic of pathology, but was extensively used as a solvent in aircraft production. The sources of supply have been grossly inadequate, and there was obvious necessity of perfecting a method of acetone production which would solve American difficulties. Dr. J. H. Northrup secured from potatoes a bacterium, which acts upon starch with the resultant formation of a high percentage of acetone. Fortunately, ethyl alcohol is formed as a by-product, and thus, two valuable commodities have been made available for scientific and industrial purposes. This contribution is by no means of insignificant proportions.

Every one is familiar with the Carrel method of treatment with the Dakin solution, but it is not generally known that the

work of Dr. Carrel had the support of the Rockefeller Foundation. The treatment of war wounds by the use of his technic and Dakin's antiseptic, followed by methods of bacteriologic control, have been of immense value in reducing mortality and in saving limbs which otherwise might have been lost.

The War Demonstration Hospital of the Rockefeller Institute, originally planned as a school in which to teach military surgeons the method of applying the Carrel-Dakin treatment, came to play an important part in the scheme of military instruction for medical officers of the Army and Navy, as well as for civil surgeons and nurses. The bacteriologic and chemical laboratories of the hospital have been studying numerous problems bearing on the surgical treatment of wounds, but have also been employed for the purpose of giving instruction in bacteriology, serology and medical chemistry.

This brief resumé of the activities of a single institution, highly endowed not merely with money, but with brains and patriotism, is merely illustrative of the general spirit of all our American institutions for research, our hospitals, and the medical profession. Every ounce of enthusiasm was devoted towards constructive work upon serious problems involving the physical health and welfare of the civil as well as the military and naval populations. The number of discoveries which resulted may not be numerically great, but their significance in terms of human life is tremendous.

The gains from researches made necessary for the conduct of military medicine are now available for the management and treatment of accidents and diseases among the general population now redirecting their

efforts towards normalizing civil and industrial activities. Out of the red cauldron of war have bubbled many soothing, helpful balms, to find a greater usefulness in the quieter channels along which will flow streams of peace-loving humanity.

tribution to such universities, colleges, or other institutions or organizations which are qualified, in the judgment of the Interdepartmental Social Hygiene Board, to attempt scientific research, and to develop "more effective educational measures in the prevention of venereal diseases and for the purpose of sociologic and psychologic research related thereto."

A Federal Social Hygiene Board.—

The determination of the government to attack the problem of venereal diseases from every angle merits warmest approbation. There is a determined effort to break down the traditional taboo regarding gonorrhea and syphilis, so that a knowledge concerning their devastations and racial hazards may be widely disseminated. It requires the force and urge of governmental action to overcome the hypocrisy, false modesty, and vicious traditions which have been evidenced for centuries in our attitude towards these afflictions.

The most significant feature in the governmental program is the leverage upon public opinion which is being sought thru the medium of publicity and educational methods. The most recent development is the organization of the United States Interdepartmental Social Hygiene Board, which at present consists of Carter Glass, Secretary of the Treasury; Newton D. Baker, Secretary of War; Josephus Daniels, Secretary of the Navy; Lieutenant-Colonel W. F. Snow, Medical Corps, U. S. A.; Lieutenant-Commander J. R. Phelps, Medical Corps, U. S. N.; and Assistant Surgeon-General C. C. Pierce, United States Public Health Service. This board is devising rules and regulations to govern grants of Federal funds, to aid research and the development of new methods of preventing venereal disease.

The sum of \$300,000 is available for dis-

According to *School Life*, educational methods that combine instruction and training along other intimate and nearly related lines of hygiene ought to merit the highest approval. This endeavor to awaken educational institutions to their obligations and responsibilities is noteworthy. The curricula of training schools for teachers have been notoriously deficient in anything of pragmatic value related to the fundamental verities of rational sex life, reproduction and eugenics. The age-old reticence of communities has been reflected in the blindness of the courses of training for teachers; and in consequence, educational institutions have been weak in their understanding of the content or methods of imparting even the simplest phases of sex education.

It is obvious that sex facts are not to be isolated, but should be presented in their proper relations to the ordinary subjects contained in the curriculum. Particular understanding of the problems as related to instruction in hygiene is requisite. It is designed to establish a modern department of hygiene in state training schools for teachers. Financial assistance will be made available for the necessary personal services when the general rules and regulations of the board are accepted and there is proof of willingness and ability to adopt satisfactory standards of educational effectiveness and the maintenance of scientific standards that will not depend on the support of the

hygiene board for their continuity.

The projected form of organization of a department of hygiene involves a division of informational hygiene, a division of applied hygiene, and a division of research, while there are definite provisions made for the personnel, requisite for the conduct of such a department. There is a suggestion that there should be close coordination between the department of hygiene in the teaching institution and other community agencies like the department of health that are directly or indirectly concerned with the problems of public hygiene.

The general plan, as contemplated, is another evidence of the benefits of federal assistance to educational developments, particularly along lines that affect national welfare. One of the main elements responsible for rapid changes in the educational interests of other countries lies in a general plan of centralization. In the United States it is difficult to secure the adoption of any particular program because of the difference in educational vision existent in the various states of the Union. There are, however, numerous advantages in the diversification of educational methods owing to the particular problems to be solved in specific states, but there can be no question about the desirability of establishing a program of minimum standards of content in education which are essential for healthful citizenship. The standards of hygiene as projected by the United States Interdepartmental Social Hygiene Board should appeal to educators as having unusual force, having grown out of the experience of the Nation with venereal diseases, physical training, periodic health examinations and a general knowledge of individual and group hygiene and sanitation as evidenced in the products of school sys-

tems performing service in the Army, Navy and Marine Corps.

The financial assistance which the government is to give will serve as a ferment to leaven some of our standards of education in hygiene. It is to be hoped that, under the guidance of this new interdepartmental board, instruction in hygiene will be made effective in our state institutions for the training of teachers, and, in time, will be manifested in the improved instruction available for the growing generation. The experiment is worth a trial, and will be watched with eagerness by those interested in the rational instruction of the growing generation in the science and art of right living.

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Trench Fever.—The fact that trench fever is spread by means of pediculi is now well known. Major W. Byam calls attention to the fact, in an excellent little book by Lieutenant Lloyd on "Lice and Their Menace to Man," that there is a possibility that trench fever may be introduced into communities to which discharged soldiers go. The danger from men still capable of infecting lice, on returning to their home communities, makes it of particular importance that there be a wider understanding of the symptomatology of trench fever, sometimes called "five day fever." It is recognized that verminous conditions exist in many portions of the country, and particularly in poorer districts and places where facilities for cleanliness are limited. Having, therefore, a sufferer with latent trench fever and pediculi at hand, the possibility of outbreaks of the disease is not remote.

Trench fever bears some symptoms in common with influenza, and it is for this

reason that greater care is required in the diagnosis of febrile conditions involving pains in the muscles of the limbs and back, around the joints, and in the shins in particular. The germs of trench fever may continue for a considerable time in the bodies of those who have had the affliction, and the disease may flare up from time to time with pains and depression which may possibly be mistaken for attacks of influenza, or rheumatism.

In its symptomatology, trench fever presents a sudden onset accompanied by severe postocular headache, giddiness, weakness of the legs, and pains all over. Occasionally, there is a prodromal period when the patient feels "out of sorts" and complains of headaches for a day or two. The pains involve the back and limbs, the temperature mounts to 103° or 104° or higher, with general discomfort, greatest toward the evening when insomnia and delirium may occur. After a period of perspiration, the pains ease toward morning, but with the approach of night, fever returns and the pains appear to seize upon the forehead, the back, the legs, and especially the shins. Sweating again occurs, and may be profuse, but with it usually comes a certain measure of relief. The fever reappears on the third evening, but with less severity, and after that, the recovery is usually rapid, tho some continue to have fever after the third day. More victims have relapses towards the end of a week and pass thru the experience above described. After an illness of three weeks, most sufferers from trench fever are sufficiently recovered to return to their duties, but others appear to develop a condition of chronic aches and pains with occasional outbursts of fever. These late fever curves are usually short, but they may return at

regular intervals, as for example, every fifth day.

Trench fever is due to infection by the droppings of lice which have fed upon patients suffering with trench fever. It is not the biting of the louse that conveys the disease. The scratching of the person bitten and the rubbing of the droppings into the abrasions serve to begin the infection. It is of importance, therefore, that clothes and blankets be freed entirely from droppings, as they may, perchance, serve as conveyors of potential infections to unsuspecting persons making use of them for covering. Incidentally, infections may occur thru small skin wounds or thru the delicate conjunctiva.

The careful efforts at delousing which are being practiced before embarking for home from foreign shores, and the practices leading to disinfestation in this country provide a reasonable security of the population against the danger of infection from lice or their droppings, borne upon the person, the clothing, or the equipment of returning soldiers. Despite every care which governmental ingenuity may provide, there still remains the possibility that trench fever may infest itself when proper conditions exist. It is, therefore, of particular importance that this contingency be recognized. Health officers and other physicians must be awake to the importance of recognizing trench fever with a symptomatology which might ordinarily be regarded as evidence of influenza or rheumatism.

The term trench fever is unfortunate as it disguises the fact that the disease is dependent upon vermin wherever existent, and is only related thru war to trench life. The control of lousiness is the essential factor in wiping out this unpleasant and unnecessary affliction.

Health Almanacs.—For many years the Health Almanac has had its place by the fireside or kitchen side of innumerable homes thruout the country. Its usual source has been the establishment purveying remedies to be taken as "blood purifiers," "spring tonics," and panaceas for a large variety of disorders of specific bodily systems. Recognizing the publicity value of such almanacs, organized publicity departments dealing with matters of health have sought to take advantage of them in order to present authoritative facts, hygienic advice, and general good cheer to the readers of such publications.

It is one thing to issue a Health Almanac and another to make it readable. By way of illustration, one notes the Health Almanac for 1919, *Public Health Bulletin* Number 98, compiled by R. C. Williams, and the *Almanac of the Louisiana State Board of Health* for 1919. From the standpoint of value to the average reader the State of Louisiana has been more successful than the United States Public Health Service. With illustrations that are popular, type that is easily readable, with subject matter well adapted to the intelligence and general psychology of average minds, it appears to approach more nearly the type which has had the place of honor for many years. From the standpoint of variety of subjects discussed, accuracy of statements, and wisdom of direction, there is very little to differentiate one from the other. In the form of presentation, however, the simplicity of diction of the state publication, the paragraph arrangement and general typography are distinctly more appealing for widespread use than the one presented by the United States Public Health Service.

The value of an almanac as a means of publicity is not to be denied, but it is absolutely essential that the subject matter be presented with a full recognition of the psychology of the reading public to whom the messages of hygiene are to be delivered. If one assumes that health officers may be inspired by the National Health Almanac, there is an excuse for its present form, which obviously could not have been intended for common usage. The almanac of Louisiana, like similar publications that have been issued by other states, as for example, Virginia, affords a more practical example of how almanacs should be developed to prove of greater service to health officials thruout the country.

Public health education is more than mere publicity. It requires more than the publication of articles, multigraphs, bulletins, posters, pamphlets and almanacs. The essence of the education depends upon attractiveness, simplicity of diction, forcefulness in illustration, directness of appeal and an appealing form of publication that attracts attention, holds the interest, stimulates imagination and invites thoughtful reactions. The entire success of public health education depends upon a thoro understanding and appreciation of the educational levels of communities, their habits of thought, their psychology and susceptibility to suggestion, appeal and direction. The newness of this field of hygienic endeavor warrants more attention being placed upon method. Subject matter is adequate and the public mind is open to inky arguments, logically developed and rationally presented. The two almanacs above referred to present an interesting study in method, and both are to be recommended to the attention of all those interested in advancing public health education.



Science and Alcohol.—It is gratifying in the extreme to the editors of AMERICAN MEDICINE to find their views on prohibition, frankly recorded in these columns during the last few months, so strongly fortified by the opinions of men as high in the esteem of the public and the profession as Drs. A. A. Brill, Joseph Byrne, L. Pierce Clark, Smith Ely Jelliffe, C. P. Sherwin, E. E. Southard and a score of other well known specialists. At a recent meeting of the New York Academy of Medicine, a discussion was arranged by the Section on Neurology and Psychiatry and the authorities named expressed their frank views on the dangers that will menace the social fabric when prohibition comes into effect. With amazing unanimity, they agreed that the evils resulting therefrom will far outweigh any little good that may come of it. Whatever the anti-alcohol forces may have to say about such an opinion (and they will surely feel constrained to answer such serious criticism) they cannot attack the authenticity of the judgment given at this meeting. It was not a sentimental pronouncement emanating from hysterical reformers, nor was it a campaign maneuver on the part of defiant reactionaries. These specialists have no axe to grind, they are the servants of no special interests. They met as scientists, and as scientists they came to a cool, unbiased, honest decision. And the decision was against prohibition, on the ground that it constituted an invitation to substitute habits which will be much more dangerous than drink to the common welfare. In expressing this view, they drew both upon their experience in the past and their equipment to judge the future. Surely, it would be hard to find a body of men better fitted to give an expert opinion on this subject.

What was said at this meeting of the Academy of Medicine has been repeatedly stated in these columns, and it is per-

haps of interest to note here that the editorials have been written by men who are absolute teetotalers or practically so. The value of these opinions, then, has been that of the testimony of a disinterested witness whose sole concern is the unperturbed pursuit of the truth. Tho it was unhesitatingly admitted that, at the base of the prohibition movement, there was a fine and worthy motive, attention was directed to the fact that the whole movement was purely a negative one. It was destructive only—elaborately conceived on its destructive side, utterly undeveloped and poorly informed on the constructive side. Alcohol was to be definitely eliminated, but what was to take the place of a habit that had taken such deep root in the life of the average individual was not stated; or, if stated, was so scantily referred to as to offer little help. There was only one speaker at the Academy meeting who had even a good word for prohibition; and, tho he admitted that "the reign of King Alcohol had been a disastrous one," he asserted that his abdication could be made of benefit to humanity only by carrying out a most elaborate and costly plan for amusements, recreations, and social opportunities as an adequate substitute. Such a plan, admittedly, has not been worked out by the anti-alcohol forces; and prohibition threatens to come upon us before a substitute has been provided. One knows from past experience the dangers that would face the community in such an event: the increased use of drugs, the accentuation of social unrest, ruinous experiment with new stimulants, and, strangely enough, even the increase of the consumption of alcohol in the guise of medicinal preparations.

These dangers have been repeatedly emphasized here and they were emphasized, in almost the self-same language, at the meeting referred to. In particular, stress

was laid upon the danger of social unrest and the lapse of the individual into various degrees of neurosis. There are few men in this country who understand better than Dr. Smith Ely Jelliffe the condition of strain imposed on modern humans by the highly artificial and trying standards which our so-called civilized form of life demands. Dr. Jelliffe made it clear that drink was more of a blessing than a curse, in that it stayed the evil effects that such trying conditions might induce and soothed into quiescence more vicious and more dangerously anti-social reactions. Drinking might be a great evil, but the evils it prevented were far worse. Likewise, Dr. A. A. Brill pointed out that drunkards were men and women predisposed by inheritance or acquirement to crime and vicious practices and that alcohol saves them from following the more violent bent of their natures. Without drink, these people would inevitably yield to temptations of a more menacing type. Incidentally, he brought out the fact that in his practice men and women who had abused the use of alcohol and were deprived of it often acquired other excesses—notably that of over-eating. The "food jag" took the place of the "alcohol jag"—a type of excess which, in its individual aspect, is not less harmful than the excess it displaced.

These facts were not brought out at the Academy meeting because of any prejudiced hostility to the prohibition movement, and they are not repeated here with a view to cast discredit on the motives of its leaders. These are admittedly of the very humanest. But, at the same time, one must call attention to the short-sighted philosophy of those who permit the promise of vague benefits to blind them to the hazards of the future threat. And that this threat is a grave one, few will doubt. It is as tho drugs having done a considerable amount of mischief, a movement were set afoot to abolish entirely the use of drugs. It is easy to perceive the absurdity of such an attempt. Drugs serve a very useful and very necessary purpose, and tho there is at the present moment being conducted a campaign against drugs, it is directed entirely (and wisely) against those narcotics which bring harm without any commensurate good. It is hard to understand why the prohibition movement has not taken this form—attacking the vicious use of alcohol and preserving its harmless

employment. Such a plan would arouse little hostility. It would find friends among all classes. An indication of how even the sanest leaders of society feel is offered by President Wilson's wise suggestion that beer and light wines be retained. Whether Congress will see fit to act on his suggestion, it is too early to say; but it is safe to assert that President Wilson, in making his recommendation, was well aware of the preference of the vast majority of citizens. The prohibition forces, aroused by this step, are preparing to fight the issue with all the influence they command. One can only regret the stubbornness and lack of vision which their persistence shows.

Saving the Saloon.—The revived Salvation Army, with a brilliant record of war service such as no other organization can boast and held in the highest esteem by every man with a gold stripe on his left arm, is planning to plant itself even more securely in the hearts of its friends. No longer regarded by the public as an organization meriting sympathy rather than admiration and confident of its mission to bring happiness to the multitude, a mission to which its war record has given a powerful impetus, the Salvation Army is disposed to take over the abandoned saloons when prohibition comes into force and save them from passing into history. This organization, having proved its humaneness, now demonstrates its wisdom. It is easy to shock the corrupt. It is much more difficult to shock the virtuous. The Salvation Army, as well aware as any one of the evils of the saloon, is not shocked to such an extent that it does not realize what an important institution it has become and what a vital rôle it has played in satisfying the instinct for companionship, recreation and diversion sought by the hard worker after the day's toil. The saloon is a drinking place, but it is at the same time a clubroom, a social circle, a man's refuge from dull care, a place where he can find relief and solace when he is most in need of them. To innumerable men to whom drink is not an absolute necessity, the saloon, because of the attractions it offers, has become an indispensable rallying-place. It has assumed sentimental associations. The bar, the brass rail, the sticky

wooden tables have become familiar objects. It is a club where no dues are required, where every man meets his neighbor, whatever his station, on a footing of equality. It is a symbol of social democracy. The Salvation Army, recognizing this and aware that its disappearance will leave a void in the spirit of many men, is planning to take over the idle saloon, bar, brass rail, and all the trappings that have made the saloon such a familiar and restful place and run it on exactly the same lines that it has been run before. Instead of liquor, soft drinks and refreshments will be served. Otherwise, nothing will be altered.

The appeal of the Salvation Army has always been to the large masses. They have understood them well. And, in deciding to take over the saloon and retain its physical aspects, it demonstrates anew that it is familiar with the psychology of the type which frequents saloons. The man who has been in the habit of taking his cocktail or his beer before a bar, with his foot extravagantly poised on a glittering rail, will hardly find much attraction in an uncongenial soft drink establishment where these luxuries are lacking. The difference is too great. But he will, out of sheer habit, be drawn to the old haunt, unaltered as it is and offering the opportunities of companionship and sociability, even tho the stuff that is passed across the bar is not as strong as it used to be. After all, he went there as much for the amiable atmosphere as for the liquor, and it is for the amiable atmosphere that he will return. And in time he will learn to quaff his soft drink with a measure of satisfaction. Certainly, the Salvation Army plan offers an easy transition to a state of affairs that will for a long time be very trying. There is a type of man who simply will not go directly home after his day's work. If he cannot go to a saloon, he will go to the next best place—which is probably the next worse place. But, with the environment of the saloon unchanged, he will have one good reason less for going to the worse place. It will help reduce the capacity for mischief which a dry régime at first generally encourages. It will diminish the hardship which otherwise might drive the man deprived of the stimulant he has become so dependent upon to more vicious practices. There is no doubt that, once prohibition is in force, numerous

greedy agencies will crop up everywhere to attract the former drinking man; and these agencies will not be of the most conscientious type. The unimaginative plan to establish social centers will not meet this danger adequately. The saloon alone will be able to compete with any chance of success, and that it will do so in the hands of the Salvation Army is as certain as such things can be. The prestige of the Salvation Army has been enormously increased in the last few years. They have shown the world that they are not bigoted, that they have infinite patience with habits of which they themselves are free, that they are not indignant censors but helpful companions; and they will invite patronage where other organizations would invite only suspicion and timidity. They have the best wishes of their numerous friends for the success of their enterprise.

"The Venereal Peril."—Recently there appeared in the morning papers of New York City an advertisement, jointly published thru the United States Public Health Service and the New York City Department of Health, which must have astounded every reader and gratified every intelligent person. This advertisement marks an epoch in the altered attitude of officials to a community menace which it has in the past always approached timidly—the menace of venereal disease. At last the issue is faced squarely and frankly. A spade is called a spade. No longer are the highly sensitive feelings of the Puritanical spinster lady considered. The authorities, at last convinced that vigorous measures have become necessary, have rolled up their sleeves and undauntedly taken up the fight. In the advertisement mentioned they go straight at the issue. There is no meticulous and shy reference to vague "social disease." There is no effort to spare the prudes. The opening phrases are worth recording as an achievement in frankness which is welcome tho belated:

"Conditions existing in many cities make it necessary to resort to heroic measures to check the spread of certain dangerous diseases. Thru ignorance many persons, innocently and accidentally, are exposed to a peril which spares neither infant nor adult. That peril is the venereal peril.

"The exigencies of war forced this government to face the problems frankly and courageously, and, as a result, the venereal rate in the American Army was lower than in any army in the history of the world. Yet, from the time America entered the war, April, 1917, to September, 1918, 2,295,000 days of service were lost to the American Army thru venereal disease. . . . In New York State alone at least 270,000 men who registered in the first draft and were not called were suffering from venereal disease." The announcement paints a rapid and vigorous picture of the serious situation, adding: "The conditions indicate that the vitality of the nation is imperiled." And it concludes, with commendable frankness: "The way to protect them is to look the evil squarely in the face and to attack it openly."

The purpose and the wording of the announcement are admirable. There is nothing new stated, but the public appeal thru the medium of the press is something distinctly new in American methods. It is hard to exaggerate the gratification felt in authoritative circles by the measures taken at last to try to wipe out or at least check the venereal peril. It has always been an Anglo-Saxon trait to wink at conditions, however serious, if they seemed to involve an indelicate admission of knowledge of their existence. Tho it was well known that venereal disease was as prevalent in this country as it was abroad, it was always hard to persuade the authorities to acknowledge the situation frankly and take steps toward the alleviation of this condition. To the Anglo-Saxon mind, with its Puritanical tradition, such steps would seem too much like an acknowledgment of depravity, and the penalty has been an increase in the spread of the disease—particularly among the innocent and uninformed. It is small wonder that foreigners, visiting in this country and witnessing our inactivity, left with the impression that we were a nation of hypocrites and prudes. Our whole attitude toward social disease in the past has been an evasion. In our effort to avoid the issue, we were inclined to assume, or let it be assumed, that the evils did not exist. Prostitution? We shrugged our shoulders and disclaimed any knowledge of that vice. Venereal disease? Why, we were admittedly a vigorous and healthy race. And meanwhile the evils continued and spread.

To acknowledge their existence, seemed to involve an admission of moral inferiority which we were loath to yield. In spite of the strenuous efforts of the finest scientific minds, we persisted in this attitude. But now it would appear that the authorities have at last undergone a change of heart. Unyielding before the persuasion of conscientious experts, they have succumbed to the menace of multiplied danger. They have decided to take the bull by the horns and fight the issue to a bold conclusion. In the announcement quoted, an intelligent program is promised; first, the enlightenment of the public as to the seriousness of venereal infections; second, immediate measures to provide prompt and effective treatment for those afflicted. Clinics have been established all over the city, and the addresses of these have been published in the papers. This enlightened policy should go far toward correcting the error of silence and neglect which has been such a blemish on the record of our health departments in the past. We congratulate the authorities on their courage and vision.

Wombless Motherhood.—The day of Homunculus is perhaps near at hand, and Faust's fanciful effort to produce a man chemically in a test tube may not be as impossible an adventure as it appears. The trend of man-made evolution has been in that direction in the last few decades. What with horseless carriages, motherless chickens and seedless fruit, the conventional routine of nature has been defeated by science, and it would seem that we are on the threshold of an era when mothers will be dispensed with in the involved process of propagation. Motherless infants! That is the next step. At any rate, it is an easy advance to motherless infants from an amazing phenomenon which Dr. William F. Grigg, of Richmond, Va., reports. This report, which Dr. Grigg read before the Richmond Academy of Medicine and Surgery, is so curious and melodramatic that it is reproduced without any change:

"Case No. 105. Female, referred to me September, 1917, with a history of bleeding between her periods. On examination, I found an enlarged boggy uterus with possible uterine fibroid and advised operation,

which was done September 21, 1917. Operation consisted of a median incision thru which the uterus and both tubes were removed. Multiple fibroids of small size were found in body of uterus. All the cervix and both ovaries (which were in good condition) were left in place. The patient made an uneventful recovery and was out of the hospital in thirteen days. I kept her under observation for six months, after which time I lost sight of her until about February 20, 1919, when I met her in the market and she told me she had had a baby born to her December 30, 1918. I told her it was impossible and went to her home the next day to see her baby. She swore it was her child. I then went to see the midwife, who said the case was as nearly a normal delivery as she had ever seen. I then told her that the mother had no womb. She said she did not know about that, but one thing she did know and that was that she delivered her of the child and was with her all during her labor."

Dr. Grigg's amazement at this phenomenon is quite natural. Amazement is the first step in discovery, which is presently followed by study and terminates in invention. The modern locomotive began with amazement that the lid of a steaming kettle should be lifted by an unseen hand when the water reaches a certain temperature. The law of gravity was discovered with amazement that an apple should fall to the ground from a tree. We do not doubt that Dr. Grigg's amazement will be capitalized in the near future, not by himself perhaps, for he may be too wary and timid a scientist, but by bolder experimenters. And it may come about that nature will be found to be as wasteful and involved as she usually is even in the matter of propagation; that parenthood is an unnecessary and superfluous accompaniment of birth; or at least that one parent, the female, can be easily dispensed with. Such a discovery would be in contradiction of all our conventional beliefs, but then discovery is always a contradiction of some old-fashioned notion. Timid philosophers have believed that both parents are essential to propagation, and even the most radical insisted that at least the mother was indispensable. Soon it may be a commonplace event, however, to produce vigorous, normal infants with an utter disregard of the parents. The future holds

forth a brilliant promise. What a simple thing child-bearing will become. There will be little danger of race suicide when a honeymooning couple in Europe, suddenly possessed of the desire for a child, can satisfy their wish by cabling home specifications of the sort of infant they want and will find that infant awaiting them on their return. There is only one drawback to such a delightful innovation—it will ruin one of the oldest and most estimable jokes in the language. What is to become of the ever-amusing quip about being born in the absence of one's mother? It will have no meaning in the new era, for being born in the absence of one's mother will be an every-day event. But progress is always purchased at a heavy price, and one must resign one's self philosophically to the sad deprivation of a time-honored and beloved joke!

In seeking to control narcotic drug addiction, the treatment of the afflicted individual is the most important problem confronting the medical profession, and few who realize the lack of knowledge of the average practitioner concerning the nature of this disease will deny that this phase of the question should logically and as a matter of common humanity, be given precedence over restrictive measures.

It would seem that the Federal government, which is responsible for the laws that are designed to prevent the continuance of drug addiction, should long before this have recognized its responsibility and obligation to take steps for the establishment and maintenance (1) of institutions in which those suffering from drug addiction may be treated thru the withdrawal period, and (2) of suitable places for the upbuilding process which in the majority of cases is so urgently required after the drug has been completely withdrawn, to fit the patient to meet the conditions of every-day life. From the knowledge at present available there are excellent grounds for believing that there is a certain proportion of cases in which, thru the presence of some physiologic deficiency, or psychologic defect, a permanent cure is extremely difficult if not impossible. These patients may, of course, be permanently deprived of narcotics, but such deprivation renders them unable to meet the competitive

conditions of life and throws them into the class of the unfit or dependable. Some suitable provision should be made for the study of these cases, particularly today when every worker is needed as never before. The large number of cases of drug addiction that will be brought to light by the enforcement of prohibition, will also call for special attention. As we have said, it is a matter of deep regret that the humanitarian, medical and economic obligations due to drug addicts were not recognized long ago, but it is not now too late, and we sincerely hope that some action may be taken during the present session of Congress to fulfil the government's plain duty to these unfortunate persons and to the communities in which they will be obliged to live. In the meantime these communities should also do their part. It is particularly appropriate that a city like New York, whose Health Commissioner has been so vigorous in his efforts to have some constructive measure adopted, should be at least as willing to provide means for cure as to provide legislation to make cure compulsory. In so far as Dr. Copeland's efforts have been directed to the obtaining of funds and facilities for the hospital treatment and after-care of drug addicts, he has our hearty support, and we wish him the fullest measure of success. We hope his success in this direction will be so prompt and substantial that it will make quite unnecessary certain of the other plans he has been quoted as intending to put into effect.

In our April issue we referred to the necessity for a better scientific understanding of the phenomena of drug addiction, as a basis for more comprehensive and effective methods of treatment. Those who have studied the subject realize the many unsolved medical problems which it presents, and which can only be cleared up satisfactorily by laboratory experimentation and scientific clinical study. Dr. Du Mez's paper, to which we referred, was very timely in its exposition of these problems, and of the diversity of results in the experimental work that has already been done. In reading his paper, which was a comprehensive review of the laboratory work done to date, one is struck by the fact that almost all of it, with one or two important exceptions, was done abroad. In view of the fact that the recent report of the Rainey Committee, appointed by the Secretary of the Treasury to gather data on drug addic-

tion, showed the drug habit to be more prevalent in this country than in any other, it is certainly an anomaly that there has been no scientific work done by any laboratory or institution in America on the action and effects of habit-forming drugs.

It would seem to be clearly in order, at this time, for the Public Health Service, which has a well equipped laboratory, to take this up and carry it thru in a manner which will enable it to obtain authoritative results upon the various disputed points, and thus lay the foundation for lines of treatment which will give the medical profession new confidence in coping with the conditions presented by narcotic drug addiction. No doubt this work will require funds, but this, also, is an obligation that ought to be recognized by Congress, and it is not irrelevant to point out that the present time offers an excellent opportunity for America to acquire the scientific prestige and authority which, in the field of biologic and medical research, has heretofore been in too large degree conceded to Germany.

The medical profession in particular has a very definite duty, as we have before pointed out, to do all in its power to encourage such research work, and at the same time to give the clinical aspects of the problem more painstaking study and investigation. To continue to ignore these increasingly insistent obligations will surely not only reflect seriously on both the scientific interest and humanitarian spirit of the profession, but for the first and only time in its history will lay it open to the indictment of remaining indifferent to human suffering and distress.

Announcement.—Owing to unavoidable conditions and the delays occasioned in the transmission thru the mails of material, proofs, etc., especially from overseas, it has been decided to make our June issue the Special War Number rather than May, as originally announced. The plans for this Special War Number of AMERICAN MEDICINE, aside from unavoidable delays, have worked out more satisfactorily even than expected and this forthcoming memorial issue promises to be a notable contribution to the literature of the World War. It will be one of the most remarkable numbers AMERICAN MEDICINE or any other medical journal has ever brought out.

ORIGINAL ARTICLES

THE PSYCHOLOGY OF THE UNCONSCIOUS AND MODERN DREAM-INTERPRETATION.

BY

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"Est modus in rebus, sunt certi denique fines,"

"Quos ultra citraque nequit consistere rectum."

*"There is a mean in things, there are certain boundaries, on either side of which moral rectitude cannot exist."*¹

—Horace, Satires I, 1, 106.

Exaggeration is not seldom the curse of the greatest discoveries. It exposes the sublimest to ridicule and banishes great values to the realms of oblivion. The new psychology of the unconscious is in great danger to reap the harvest of lack of appreciation thru the exaggeration of its very votaries.

The first great impetus to the study of this psychology was given thru the publication of an essay, "Studies in Hysteria," by Breuer and Freud in 1895. The authors had the occasion to study the etiology and symptomatology of hysterical patients. In their

studies they found that hysterical symptoms depend largely upon impressive but forgotten scenes in the life of the patient. Every symptom has its origin in a psychic trauma which acts like a foreign body in consciousness, the trauma being effected thru the repression of eventful concepts beyond the limit of memory. Such concepts¹ are no longer subject to the laws of reason, judgment or will. Still they give rise to certain emotions, since emotions are not subject to conscious reasoning or to will power.

The new doctrine of the origin of the hysterical symptoms led to the introduction of six new conceptions in the study of psychology.

I. The first rôle is played by the basic *event*. A certain event in the life of the individual gives rise to affects out of harmony with the ethical, moral, religious, social or educational ideas of this person.

II. These effects cause a *conflict* in the psyche of the individual, a conflict between his anti-social impulses and ethical restraint.

III. If an immediate abreaction or discharge by conversion is not effected, if the affects have not found an adequate release, if the emotional tone has not found a proper outlet by being converted, *e. g.*, into cry-

¹ In this article the writer wishes to show nothing more than that while the modern psychology of the unconscious has been a great gain to the study of psychology in general, the doctrine of infantile sexuality and the sexuality in dream-interpretation is an unproven theory, contrary to all human experience.

¹ A concept is a mental picture of a sensation; memory is the faculty of recalling concepts; reason is the power to recognize the source of concepts; judgment is the power to arrange concepts for definite ends; will is the power to select and regulate concepts; and emotion is the condition when marked concepts overcome the power of will.

ing, scolding, rage or punishment of the offender, if the emotionally accentuated affect has not been worked off—then a strangulation of the emotion takes place. The affective toned event is automatically or volitionally put beyond the limit of memory. The conflict causes a certain *repression*. All painful events, unfulfilled wishes, remorses, cares or all emotions which come in conflict with cultural qualities and cause psychic pain, are placed in the secret recesses of the mind or are expelled from consciousness.

Any event incompatible with consciousness is rendered innocuous by repression. The disagreeable, or that which is harmful to the individual or to the race, is avoided; the agreeable, which is helpful to the individual or to the race, is sought for. Consciousness admits the affects of beneficent ideas and inhibits the entrance of harmful conceptions. When a pathogenic idea of a painful nature is incompatible with the ego a repression takes place. A certain psychic force opposes the pathogenic idea from becoming conscious.

Every conflict between conscience and desire being the cause of psychic pain is repressed, in this way guarding the mind against inimical influences. All ideas, tendencies, inclinations, fears and disappointments that bring mental reactions leading to conflicts are repressed. All highly emotional events which did not find an immediate release, an abreaction, or catharsis, at the time of the occurrence, by action or speech are repressed.

IV. The repressed idea is crowded out from consciousness and placed below the zone of conscious thought where mental and nervous activities or subliminal processes are shut off from the observation of the ego.¹ The repressed affects form a nucleus for an entire constellation of ideas in the subcon-

sciousness. One fixed idea associates itself with another idea until a group of ideas is formed, an idea-system, or *complex*. Every idea with its emotions removed from awareness forms a complex. The complex designates a group of ideas centered or constellated about a central event which had a large content of painful, emotional coloring. The isolated idea of the event which conditioned the painful emotional state forms the point of crystallization around which all other corresponding ideas gather and cluster. The complex is thus a system of connected ideas all having a strong emotional tone.

The complex is a quasi-parasite of the psyche, the associative connection between it and the rest of the psyche being disturbed. The complex being dissociated falls out of association with the other facts of mental life, and a reaction amnesia is produced. The volitional memory being withdrawn, the amnesia makes it impossible for the piled up emotions to be discharged. The idea can only be recalled in the abnormal states of consciousness, such as in the hypnoid or somnolent condition.

¹ It has always been known among psychologists that man possesses two personalities, conscious and unconscious; that the mind consists of two selves, the subliminal that never sleeps and never forgets and the supraliminal self that does. Metabolism, digestion, circulation, secretion and excretion are not controlled by the conscious ego; these functions dwell outside the field of awareness. The autonomic systems of the vagus and the sympathetic nerves have their centers in the subliminal psyche and their seats outside of the realm of consciousness. The coordination of the bodily functions, such as the relaxation of the extensors at the moment of the contraction of the flexors in the act of walking, or the relaxation of the sphincter at the instant of the contraction of the detrusor in emptying of rectum and bladder, lies below the threshold of consciousness as long as the balance is well regulated in the healthy organism. What the Freudian school has added is the doctrine that subconsciousness is responsible for many a character trait of a person. This addition will remain of lasting importance for the discipline of psychology.

V. The accumulated energy finds no channels of exit. The unrequited affects being ready to come to light, the complex has the tendency to produce actions of a certain character. Especially dynamogenic are complexes with a large emotional content. They will not stay repressed because of their dynamic potency. When sufficient energy has been accumulated to overcome resistance, they begin to flash a series of neurograms, and certain *reminiscences* appear which must find expression somehow. Especially in the neurotic the repression is not always complete, and the affect has to be expressed in some other way. The painful experience, *e. g.*, an attempt of rape, is forgotten but a symbolical reminiscence is retained. These emotional ideas are constantly seeking a reentry into consciousness.

VI. These irradiations from the psychic complex give rise to a certain restlessness of the individual, and he finds a *defense* in the conversion or substitution of the reminiscent energy or psychic impulse into hysteria, compulsion neurosis, or obsessions. The hysterical attack is thus equivalent to an emotional discharge. The impulse spends itself in the attack.

The psychic determination of the symptom is the intentional repression from consciousness of an idea of a painful nature. A certain psychic force strives hard to crowd it out of the mind—to eliminate it from consciousness. The idea or the verbal element is then repressed but the emotion is free to associate itself with any appropriate substitute idea. The individual hence invents certain defense-reactions against these reminiscences.

The defenses are compensatory in character. In everyday life, to forget trials, tribulations, blasted hopes and disappointments the individual plunges into a strenuous

life of business, into the service of religion, into social service. Sometimes the individual embraces a fad, or he takes to drugs, alcohol or opium. Others find their wishfulfilments in dreams, reveries, deliria, phantasies and hopes. Other defense reactions consist in moods or character-trait which find expression in witticisms, jokes, puns, cynicism, nagging, faultfinding, scolding and scandal-mongering. These are all means of side-tracking painful reminiscences.

One of the most important defense reactions is the hysterical conversion. The energy quantity of the affective-toned idea within the complex is converted into a motor or sensory innervation which is somewhat related to the traumatic event,¹ as the following case may illustrate.

Miss S., 26 years of age, when nine years old, had a girl friend with whom she slept in one bed and who practiced masturbation on her, but she never herself repeated the practice. She began to menstruate when 14 years old. From this time until four years ago she enjoyed being occasionally caressed by boys, and altho very passionate, she never found anything abnormal in her behavior. Four years ago she got engaged and in her sensual excitement she allowed her lover to try intercourse, but he never succeeded entrance. As soon as he came near the vaginal orifice, she immediately got a severe pain in the sphincter cunni, the abdominal muscles contracted and became rigid and painful, the pains radiating to the legs as far down as the knee. The cramps in the uterus resembled the pains at menstruation. With the moment of the onset of the attack she became frigid and refused to allow any farther attempts of intercourse. These attacks repeated every time such attempts were made. For this reason she broke off her engagement.

¹ In an article "Vicarious Vaginismus" (AM. MED. December, 1916, p. 834) the writer described a case of vicarious vaginism where the convulsions formed the defense reaction against conjugal incompatibility.

In the present case fear of the pain at defloration is the basis for the defense reaction.

At present she is engaged to another man. But nowadays the same attacks take place when she becomes passionate by ordinary caresses, such as kissing or hugging. She is therefore afraid to get married and is looking for medical advice.

The gynecologic examination revealed some ecchymoses at the vaginal orifice and a hard prolapsed left ovary. During this examination she had no attacks, as usually found in genuine vaginism.

The anamnestic inquiry elicited the confession that her girl friends have painted to her the pains at defloration in the blackest colors. The original attacks at the attempted coitions were hence the defense reaction against the realization of the attempts. At present the defense reaction is directed already against simple caresses which may lead to an attempt. During the gynecologic examination when such a fear was absent, even the stretching of the sphincter cinni with two fingers did not elicit any convulsions.

The hysterical symptom represents a certain process of conversion of affects. The struggle between the wish to forget and the striving of the idea to come to the surface results in a compromise. The transmutation of the affects in the motor realm is manifested in hysterical paralytic conditions or in convulsions. In the mental realm such transmutation creates the anxiety-neurosis and is expressed in irritability, conscience-fear, in being suddenly startled, vertigo, in ravenous hunger, diarrhea, panting respiration, sudden perspiration, palpitation of the heart and so forth. The neurotic anxiety corresponds to a force diverted from its destined unused up goal, it corresponds to the undischarged sum of excitement. The hysterical symptom represents thus the expression of a wishfulfilment. The emotional tone of the conflict, the intensity of the feeling-tone, determines the nature and intensity of the symptom. Where the conversion or the transference of the affects upon in-

different conceptions is impossible, the idea is dislocated into an obsession.

The discovery that the sources of the hysterical symptom are the psychic overtones, emanating from repressed emotions, that the neuroses are based upon certain affective-toned events in the life of the patient, that these affections represent the displacement of the affective energies not immediately discharged at the time of the event¹ led to a new mode of treatment consisting in a later discharge of these emotions. It was found that in many of these affections, if a free outlet is given to the symbolical reminiscence by the aid of the physician, if the experience, long forgotten, is reproduced in a hypnotic or somnolent state of consciousness, the symptoms not seldom disappear. Upon this phenomenon rests the so-called cathartic treatment. The event is recalled to memory and a late discharge of the affects is effected. The abreaction consists in working off something by living thru it again. It is a catharsis thru speech.

The doctrine of the neurotic symptom being produced by the antagonism of incompatible emotional trends, this principle of the dissociation of consciousness which led to a new mode of treatment by catharsis became at the same time the starting point of the new psychology of the unconscious based upon the above described six cardinal points: (1) the affective-toned event, (2) the conflict, (3) the repression, (4) the complex, (5) the reminiscence, (6) the defense reaction by the substitution or transference of the original affects of painful experiences upon other less disagreeable actions.

¹ Such an immediate discharge would be the destruction of innocent objects in rage, the harming of the messenger of bad news, or the killing of the offender in a case of rape.

With the aid of this branch of psychology many a fad¹ or exaggerated tendency hitherto unexplainable is now amenable to interpretation. Every emotionally accentuated idea or activity is the emanation of a complex, the emotion of which is ambivalent. Repressed love is thus not seldom replaced by manifest exaggerated hatred and repressed hatred by manifest exaggerated love. Repressed desire is replaced by manifest aversion. An intense repugnance is converted into extreme solicitude. It is the attempt on the individual's part to guard himself against the repressed affect and to rehabilitate himself in his own self-esteem. In this way there may not seldom exist a wish to love and at the same time to destroy a person. A piece of art² may thus be only a compromise by which the artist liberates himself from the reminiscence of his complex, the artistic creation representing the compromise.

The psychology of the unconscious would no doubt have been accepted by the majority of psychologists and would have changed the entire conception of psychology in general but for the preposterous proposition

¹ In an article "The Psychology of the Fadist" (*N. Y. Med. Jour.*, Oct. 7, 1917), the writer tried to trace to their respective complexes a few conspicuous fads, such as the obscenity complex of the purist, the prostitution complex of the morality hunter, the clinging complex of the feminist, the drink complex of the prohibitionist, the cruelty complex of the anti-vivisectionist, the Shylock complex of the antisemite, the individualistic complex of the socialist, the oppression complex of the anarchist or Bolshevik, the sadistic complex of the philanthropist. Even some vocations could be traced to complexes, e. g., the criminality complex of the criminalistic jurist.

² The artist is usually a person who is not in sympathy with the world of reality, which demands that hedonic desires should often be renounced. Art is then the substitute of an equivalent pleasure to an esthetic sort. The pleasure-urge is thus diverted from the purely physical and furnishes the motive power for artistic production. The tragic incompleteness of the artist's life thus becomes the spring of art in literature, painting, sculpture and architecture.

that the sex instinct in its various disguises is the only dynamic force at the basis of subconsciousness. As the outgrow of the Freudian doctrine, appeared the dogma of infantile sexuality which has become the pivot around which the pansexualistic psychology is turning. A school grew up around the Freudian theories which exposes the entire discipline to ridicule thru the exaggerated emphasis of infantile sexuality and the queer interpretation of dreams on the exclusive basis of sex.

The doctrine of the pent up sexual energy being the source of all human activity and endeavor is entirely out of harmony with the moral, ethical and logical conception not only of the man of the street but also of the scientist. The conclusion that, because the complexes of hysterics may often be traced back to sexually toned events of childhood, every child is polymorphous-perverse is neither logical nor scientific. Because some hysterical attacks represent the equivalent of orgasmic gratification does not prove that every normal or even abnormal phenomenon of life should be traced back to sexuality and that sex in the generic pervades all manifestations of life. Because infantile sexual memories have been found in hysteria and anxiety-neurosis of the adult does not prove that every habit and behavior must be retraced to infantile sex life, that all pleasurable feelings, bodily or psychical, all emotion or affection, intrafamilial or extrafamilial must be classified as sexual, that the play instinct of child and adult, the desire for knowledge, the impulse for investigation should all be attributed to sexuality in the usual gross sense.¹

The fantastical extravagant doctrine of

¹ This is what the pansexualist could mean when he speaks of infantile incest, infantile homosexuality, exhibitionism, mixoscopy, sadism, masochism, etc.

infantile sexuality starts from the proposition that every new-born infant brings along sexual inclination, that every infant is composed of nothing but sex. This is surely not a self-evident proposition and requires to be proven; yet no adequate proof is brought forth. The pansexualist demands that this proposition should be taken for granted. For him it is an axiomatic truth that must not be doubted, but since this dogma runs counter to all experiences of mankind, we are told that by infantile sexuality the Vienna school understands infantile libido or infantile pleasure goal. But if infantile libido is something different from adult sexuality it should not be called by the same name.

We cannot employ the same term for two entirely different conceptions. A libido embracing all positive strivings such as de-

sire for food, defecation, micturition and so forth, is a misnomer, it is not sexual libido. All kinds of sensuous pleasure and desires cannot be designated by the same term—libido. The first sexologists used the term libido to designate orgasmic pleasure, hence it ought to be reserved for this exclusive use. In common speech such an equivocal mode of expression would bring confusion, and it was bound to bring confusion in psychology¹. The use of equivocal terms for the purpose of supporting some preconceived system does not become the honest scientist. By adult sexuality is commonly meant the gross sexual act with all its preliminaries and associated activities which lead to it or follow the same. Such a sexuality does not exist in the normal child. Normal infants and non-seduced children up to the age of 8 to 12 have no conception

¹The term "libido" is often used indiscriminately even by non-Freudians for two different conceptions, for the sex-urge, or the desire for union, and for the material pleasure, experienced at the moment of the gratification of the desire. Still the former is an impulse and the latter an affective experience. The pleasure which is synchronous with an act has nothing to do with the will to act. No sensible man would ever think of calling "hunger" for food and the pleasure derived while eating by one and the same term. Still just this is done when sex-ardor and orgasmic delight are called by one and the same term libido. The writer always calls the sex desire "voluptas" and reserves the term "libido" to designate the orgasmic experience. Voluptas is an impulse, libido an experience, an agreeable excitation of the nerves, an enjoyable sensation, a self-feeling, not comparable with emotional pleasure, experienced, e. g., in the anticipation of a show, dance, or banquet, or the joy of a parent derived from the success of a child, or the delight at the contemplation of a beautiful landscape, or the felicity attached to achievement. Orgastic libido is a state of the body *sui generis*, an ecstasy, rapture, or bliss unique in its content. It is not to be compared with the negative lust-feelings felt at the removal of pain, such as the removal of hunger by eating; of the pressure of bladder by micturition; of pressure of rectum by defecation; of the itching of the skin by scratching. Because of the uniqueness of the positive sexual lust-feeling the early sexologists had to look for a new term for this feeling, and they called the reflex-condition or the state of the body during ejaculation by the term or-

gasm, while to the experience, or to the conscious condition they gave the name libido. To call the desire for this experience also by the term libido is to bring confusion into the study of sexuality. The desire for a positive lust-feeling and the feeling itself are not one and the same thing. If this proposition needed any further proof at all, pathology proves it to conclusion. In some patients the sex-urge or the potency of voluptas is greatly enhanced; they get excited by every petticoat; still union is accomplished with scarcely a trace of pleasure. They are impotent of libido. In other patients, the so-called woman haters, the sex-urge is on the zero-point; yet when they happen to have intercourse they experience normal pleasure, the potency of libido is intact. Still a good many sexologists continue to use the same term libido interchangeably for the experience and the desire. Now come the Freudians and complicate matters still farther by calling not only sex desire but all other desires, such as the desire of food, for defecation, micturition, or for scratching by the same term libido. Then after having borrowed a sex term for non-sexual desires, they turn around and call all these desires sexual. They constantly speak of lip, anal, urethral or skin eroticism. Thus one sin brings in its train another sin, as Ben Ajaj used to say (Aboth IV. 2). To give to this arbitrary play with terms a metaphysical coverlet, this school regards the multiplicity of instincts as issuing from a relative unity, the primal libido. Since the most intelligible articulation of this primal libido is sex attraction, the pansexualist attributes all desires to this sex attraction.

of the sexual act. Every thinking parent is enough of a psychologist to observe his or her own child and he finds that his child is not polymorphous-perverse.

If the Freudian means by infantile libido something different from adult sexuality he fails to show it by his reasoning. "Whoever observes," says Freud himself, "how the infant satisfied at the mother's breast falls back with flushed cheeks and happy smile will admit that this picture is the standard for the expression of sexual satisfaction in later life." If this passage of Freud means anything it means that the infant had enjoyed orgasmic libido such as the adult in later life. It is not the satisfaction of hunger but that of sex that gave him the pleasure. Nobody in the full command of his senses would dream to call the satisfaction the adult experiences at the relief of pressure by defecation or micturition sexual, but the infant's satisfaction at such relief is attributed by the pansexualist to sexual libido¹. If an adult, when alone should relieve himself of his clothes, he could not be called an exhibitionist, because in exhibitionism an observer is a condition *sine qua non*. Mere nudity is not exhibitionism nor narcissism. But if the infant, whether alone or in presence of his mother or nurse, pushes off his covering the action is attributed to sexual exhibitionism, not to the pleasant sensation of freedom from clothes. The curiosity of children is proverbial. The small child wishes to see everything, to hear everything, to know everything. Children will break and destroy any plaything for the sake of exploring the mechanism. But when a child observes with curiosity the genitals

of another child of the opposite sex, this instinct of curiosity, this emotion of wonder; is denounced as mixoscopy. The curiosity defecation produces in the child is coprophilia in the eyes of the pansexualist. The cruelty of the child towards animals, in his ignorance of the cause and effect of pain, is denounced as sadism. If the child maltreats the teacher by his naughtiness he is a sadist. If he knows that he will be punished and still does it he is a masochist, and if he screams while punished he is a malingerer. If a boy loves his mother, the love is attributed to sexual desire, and if he loves his father he is a homosexualist. The girl's love of her father has a sexual component, and her love for her mother is a sure sign of bisexuality. The pleasure of sucking at the mother's breast is sexual libido, and the lust at sucking from the bottle or of the finger is attributed to lip eroticism. In the opinion of the pansexualist, the infant has no need of food, only of sex. Because the three body openings happen to be erogenous in some degenerate adults, the labial, anal, and urethral eroticism of the child has become a common by-word of the pansexual school. The fascination of being rocked is due to sexual excitement. The pleasure of being tossed in the air has a sexual undertone. When the child enjoys his bath the enjoyment is attributed to the erotic functions of the skin, not to its simple stimulation. When the child makes its body rigid, it is not an expression of angry obstinacy—this would be common sense which does not exist in the eyes of the pansexualist—but muscle eroticism. The child is not only polymorphous-perverse but a common criminal, as shown in his plays and games. When he plays the soldier, he is a murderer; when he plays with matches, he is inclined to arson.

¹This pleasure, the pansexualist claims, is different from that derived from the natural relief from tension. And he finds this difference in the mischievous expression of the infant's face. Upon such shaky evidence is built this wonderful doctrine.

It is not only the hysterical patient who harbors the Oedipus complex or the Electra complex. In the eyes of the pansexualist, one of these complexes dwells in every normal man or woman. The sexual emotions of the adult only associate and assimilate the original affection the boy has for his mother and the girl for her father. Every love is merely a repetition of the first love of the mother or, respectively, for the father. The mate is always a mother or father image. The love of God is the sublimation of the gross love of father. The father complex is the prototype for all kind of reverence. The struggle between the infantile constellation and the cultural incest-taboo forms the parents complex, and the sublimation of the sex reminiscences of this complex gains components for cultural effects, such as disgust, shame, morality and so forth.

Such a strange proposition as infantile sexuality would naturally require an irrefutable proof, and the only proof the school has is Freud's word which must be accepted as final or one lacks scientific attainments. The infantile sexual factor in man's life is taught as if it were the positive, untarnished, absolutely proven truth. Infantile sexuality forms the cornerstone of the entire Freudian edifice, yet no genuine evidence is presented of its existence in the normal child. The direct observation of normal children by unbiased observers does not show any sex motive in the infant's life. The study of normal babies shows them to be without any sex consciousness. The evidence brought forward by the Freudian sect emanates mostly from the reminiscences of neurotic adults or is based upon the observation of neurotic children. The striking and exceptional is then extended to cover the normal. There is no positive, clear-cut proof of the existence of any infantile sexual desire. Infantile sexuality is nothing short of the aber-

ration of the spirit. Unless all feeling, affectivity, yearning, all human energy are called sexual, such a thing as infantile sexuality, analogous to that of the adult, does not exist. There is no sexual factor in the life of the infant. The normal child has no copulative desire for parents or anybody else. The incest-complex is a terminologic absurdity.

The greater attraction the parent of the opposite sex may have for the child or the child for the parent has no conscious sexual coloring in the sense of adult sexuality. This attraction is based upon the unconscious biologic general attraction of the male and female principles in all organic life. It is the attraction of the pistil for the pollen. It is a part of life's mystery, of the *élan vital*, the "*Wille zum Leben*." This attraction is not synonymous with adult sexuality. Neither is the satisfaction of all infantile desires sexual libido. The term sexual for all infantile pleasures is used by the Freudians in a loose, confusing manner. The entire doctrine is mere guesswork, based on the vaguest sort of evidence. Probably the followers of the cult are themselves suffering from a certain complex.

The interpretation given by the Freudians to the innocent activities of their own or of their friends' children would show that they themselves are harboring the sensuality complex in their make up. They find sex where the normal man would look for it in vain.

This sensuality complex would explain the stand the pansexualist has taken in regard to chastity. Only the sensualist claims that chastity is impossible. Normal men in all walks of life, from the north pole explorer to the soldier in the trenches, know by their own experience that chastity is possible. The pansexualist who, if not advocating, is at least condoning sexual license in

men or women, is no doubt harboring a sensual complex. In an essay on chastity (*Amer. Jour. of Urology and Sexology*, May, 1918) such a Freudian claims that total abstinence is impossible. He plays the trick, well known to the student of logic, by starting from the false premise that by chastity is meant a chaste human being that never felt the alluring breath of sexual thought. Then he goes on to prove that such a being has never existed. But supposing the individual has felt the alluring breath of sensual thought and did not yield to the allurement, is not such a person also chaste? When we speak of an offense against chastity we do not mean sensual thoughts. Supposing that by chastity is meant the refraining from physical congress except with one's permanent mate? Such a chastity is surely not impossible and it fulfills all the requirements of the categorical imperative. This social imperative is only concerned with sex congress when a second person is in the play. Masturbation, mental eroticism, day-dreaming may violate the rules of personal hygiene, but they do not concern society. Thinking unchaste thoughts does no one any harm except the thinker, and he has to settle his autoerotic practices with his own conception of personal hygiene. The advocate of sexual chastity is mostly concerned with the categorical imperative which reads for the woman: "Thou shalt not introduce strange blood into your system and cause blood chaos in your offspring and thou shalt not jeopardize the economic life of yourself and of your offspring"; for the man it reads: "Thou shalt not jeopardize the economic welfare of your neighbor's wife and children, thou shalt not introduce blood chaos into his family and thou shalt not expose yourself to the pollution of the venereal diseases and thus jeopardize the health and

life of your wife and children" (Talmey, *AMER. MEDICINE*, July, 1917).

The advocate of chastity claims that abstinence is difficult for the hedonist, the person with an ardent sensual disposition; for the intellectual elite, the superman, the great thinkers, the investigators, abstinence is easy. The pansexualist continually contradicts himself. In one breath he says that the sexual impulse is intractable and uncontrollable and then he says: "If our youth could marry at 20, they would be the first to preach abstinence." Hence from puberty to twenty, the period of storm and stress, when most of the venereal diseases are contracted, the youth would have to control their sex urge. Why then could not they control it after twenty? Suppose they are not absolutely abstinent, suppose they do sometimes think sensual thoughts, suppose they practice sometimes autoeroticism—the pansexualists with Stekel at the top claim that masturbation *per se* is harmless—if they only be chaste, *i. e.*, relative abstinence from illicit congress, that would be a great gain and the only thing the moralist is concerned with. The moral categorical imperative is a social imperative. When no other person is in the play, man's behavior ceases to be subject to the moral imperative and is only controlled by right conduct.

The claim of the pansexualist that one can no more live without sexual experiences and not be harmed thereby than without food is a palpable error. The individual grows and thrives without sexual experience before puberty and after the climacterium but needs food during these periods. The pansexualist has gone mad on sex. To speak of the erotic fantasies of a one-year-old child is nothing but madness. The pansexualist is defending a sex complex of the first magnitude. Any psychologist who can

say that "There is only one kind of love—the erotic"—is a hopeless sensualist. Such a dogma can only be the emanation of his own complex.

The dogmatic attitude is even more emphasized in the dream interpretation of this school. It has been known since time immemorial that many dreams represent wishfulfilments not realized in the waking state. From this general observation the doctrine was proclaimed that every dream represents the fulfilment of repressed wishes, not of ordinary every day wishes, but infantile sex wishes.

This theory of the wishfulfilment of the dream runs counter to everybody's experience when he happens to remember the phantasmagoria of sleep which, far from always fulfilling a wish, not seldom produces the most frightful oppressive emotions. Hence a *deus ex machina* was created in the psychic censor who, watching over the woe and weal of the sleeper, distorts the hidden dream content into the manifest dream thought. The dream itself is purposive, teleologic, providential, created no doubt by a god, probably Morpheus, to secure refreshing sleep. But in order that the dream should not reveal too much of the repressed infantile sex wish, the censor has been placed on the threshold of consciousness and his duty is not to allow any contents he does not approve of to enter awareness. This theory required three distinct principles to be introduced into the mechanism of the dream.

(1) The latent dream content, non-recallable to memory, having its seat in subconsciousness.

(2) The manifest dream thought, recallable to memory, with its seat in consciousness, and

(3) The censor with his seat at the point

of transition of the two psychic systems, or on the threshold of recall.

The latent thought invariably contains the fulfilment of a repressed infantile, sexual wish. In order that the wish remain repressed the censor watches at the threshold and distorts the latent content so that the fulfilment is not any longer recognizable in the manifest thought. The aim of the entire elaborate mechanism is not easy to grasp. What is the purpose of a wishfulfilment that does not reveal itself to the conscious ego? What is the use of representing the wish as fulfilled if the fulfilment does not enter the wisher's awareness? How should such a problematical wishfulfilment guard sleep? A fulfilment that remains hidden to the conscious ego is not fulfilled as far as the ego is concerned. The entire latent content appears aimless and purposeless. In the waking reveries the individual's wishes are fulfilled, and he knows it. In his dream the repressed wishes are also said to be fulfilled, but the individual does not know it, he has to go to a disciple of psycho-analysis to find it out. Still, without telling the logical "why" for the dream work, an edifice of fantastic dream interpretation has been erected which could rival the dream books of our great grandmothers.

In the first place several laws have been laid down, the truth of which no one is allowed to question under the penalty of being considered an ignorant heretic.

(1) Every dream deals egotistically of the dreamer himself.

(2) Every dream is a wishfulfilment of a sexual nature.

(3) The wishfulfilment is contained in the latent content.

(4) The manifest content forms the dream work; it is the allegorical expression of a dream thought.

(5) The allegory is used by the psychic censor to prevent the unconscious from becoming conscious.

In the waking condition the censor keeps back the unconscious desires emanating from the complex and does not allow them to penetrate into consciousness at all.¹ In sleep the censor allows the desire to enter awareness but in disguise, in conversion, distortion, so that the desire and its fulfillment remain hidden to the sleeper.²

The means of distortion are:

- (1) Fusion of words and events.
- (2) Transformation of pictures.
- (3) Indirect expression of things thru symbols.
- (4) Displacement or transformation of affects.

(5) Condensation; one element represents several dream thoughts.

(6) Transference by dividing the dreamer into his good and evil ego.

Besides the class of dreams, always known to mankind since time immemorial, the Freudians know of two more classes:

(1) The innocent wish is fulfilled in the manifest dramatization. These are the sweet dreams. The hungry receive all kind of delicacies, the thirsty all kind of drinks, the cold are warmed, and the abstinent enjoys the company of the other sex. To this well known class the Freudians add:

(2) The second class represents the fulfillment of repressed wishes. But the censor does not allow any trace of the latent subconscious wish to enter consciousness. Hence the dreams remain unknown to the ego and are emotionless.³

¹This conception is not new. The censor is here nothing else but the system of inhibitions between the impulse of gratifying instinctive desires and cultural restraints.

²No adequate answer is given why the censor allows the entrance at all, if the desire is to remain hidden anyhow.

(3) The third class of dreams represents the realization of a repressed but not sufficiently hidden wish. Such dreams are accompanied by fear and distress. Being strongly affect-toned dreams they are usually remembered.⁴ When the affects are so great that they arouse consciousness, the dream is remembered.⁵

Three sources of the dream have always been known to man: (1) recent events, (2) somatic states, (3) affect-toned past events, and to these Freudians add (4) infantile sexual events.⁶

It was always known, even to primitive man, that anxiety dreams usually have a somatic source, a stomach full of indigestible food, trouble in breathing, pressure on the heart or on the great vessels and so forth. In such dreams the sleeper often passes thru the same anxieties he experienced in the past in the waking state. The incitement to indifferent dreams lies usually in the events and experiences of the last few days.

But the new school claims that the dream work is marked by overdetermination. In waking thought the tendency to side-association is inhibited by the thought direction. When this direction is removed or weakened, as in dreams, a condensation takes place, or the dream thought is determined from different sides by different associations. The dream is overdetermined, hence

³Under Freud's teleologic interpretation of dreams the purpose of their presence is not quite intelligible.

⁴Why the censor allows the commission of incest, the greatest sin known to man, to enter awareness is not easily seen.

⁵In the writer's limited experience the change of position when awakening creates a complete amnesia of his dream. If he remains in the same position he occupied when he slept he remembers his dream; if he turns on the other side he forgets the most innocent dreams.

⁶The dream of nudity without regard to the persons present is an infantile exhibition-dream, the incest dream is an infantile wishfulfilment.

its ambiguity. The affects reign, similitudes have the value of indentities, and symbols render thought-residues innocuous. The symbols are the cause of the oneiric fusion and aim to protect sleep.¹

With the aid of dream-symbolism the Freudian is in a position to put the sex motive into the most innocent dream. The enumeration of the sex symbols will easily show that there can scarcely be any dream in existence without having some sex symbol in its content. The interpretation of the material symbols by the new sect.² is simply riotous. Everything that is tall, thin, long, that grows or opens like an umbrella, shoots like a gun, has a cryptic allusion to the male sex organ, or the phallus. Things that have the shape of a curve, or which enclose a certain space,³ such as the box, case, closet, stove, carriage, tunnel, cave, ring, or shell represent the female sex organs, or the yoni. A store means the vulva, an apron the labia. If a man enters a store in his dream or touches an apron, it is a wish-fulfilment of intercourse. If unhappily a woman dreams of a store or of an apron then it is simply a homosexual infantile wish.

Every twig, cigar, asparagus, tooth, tower,

peak, summit, sausage, or serpent represents the phallus. A copula means a testicle. Opening an umbrella means erection. The number three means the male genitals which consist of three parts. The curve of the moon means the yoni, but also erection because it grows. A sharp sword means erection. Every hole, screw-nut, pocket, pear, plum, grave, female servant, or sister, means the vagina. The triangle or the rose mean the vulva. A coffin symbolizes the womb. Fur is the symbol of the pubic hair. A ball surrounded by a ring, like the Hindu lingam, means sexual union. Telephoning means copulation. Penetration into narrow spaces is a birth phantasy. The opening of a locked door, or of a letter means sex union. Murder means defloration. The criminal, horses, lions, tigers, biting dogs mean passion. The stallion, steer, hare, buck, mean great potency. A hand, a finger, or drawing, tearing and milking mean masturbation. The automobile means autoeroticism. Playing piano means copulation. A woman dreaming of a bundle means non-satisfaction with one man. Water in her dream means pregnancy. To be poisoned means to become pregnant. Going thru a narrow channel or seeing the bank of a river is a birth recollection. The transformation of one thing into another means bisexuality, or vacillation between a man and a woman. The dog means sexuality. Going thru the trial of examination means sexual trial. A woman dreaming of falling means yielding. A locked door means fear of temptation. Not being understood means sexually not satisfied. A draught-horse means the husband, the watchman means the wife, and the emperor means the father.

Dreaming of being nude is an infantile exhibition dream, dreaming of flying is an infantile reminiscence of being carried by

¹ With the help of the symbol an abstract thought is changed into a material picture. The thought of love is pictured by a death scene, the thought of the phallus by the symbol of a screw driver and the thought of the vulva by the picture of a plum. This doctrine of the ambiguity and symbolism of dreams enables the new school to give any meaning it chooses to any dream. The most forced fantastic interpretation may be defended with the help of this pretended symbolism and ambiguity for the existence of which no adequate clear-cut proof has been given except the dreams of degenerates.

² The symbols are not even original with this sect. Any student of ancient sex worship meets time and again with the Freudian symbols in the ancient cults. (Talmey, AMER. MEDICINE, November, 1918.)

³ They are said to recall the female curved Mount Veneris and the enclosures of the vagina and uterus.

the mother. Flying also represents a death-wish, to become a flying angel. Taking a walk, departing, going home, leaving the room, vanishing, all mean to die. Paleness means death, and a small house means the grave. Death of relatives with sorrow is an infantile wishfulfilment. The death of the father is a sign of the Oedipus complex. The mother's death is a homosexual infantile love for father. Dying means to live. An old woman means death. A fall into depth means a terrible crime. A crowd of people means a secret. Affective dreams, such as exertion, exhaustion, restlessness, coming too late to a train mean moral loads. Unrealizable, unfulfilled wishes change into anxiety dreams.¹

The mere enumeration of these fantastic symbols, these wild, fanciful and capricious interpretations, sufficiently explain why most psychologists turn away entirely from Freud's teachings. This doctrine of fixed symbolism is inherently so improbable, unfounded and unscientific; this obsession of the pansexual sect that there must be some suppressed sexual element in every dream; this preconceived notion that some sex complex is at the bottom of every dream—these are responsible for the agnostic attitude of the true scientist towards the teachings of the Vienna school.

The theory that the kaleidoscopic bizarreness and strangeness, the shifting scenes, the changing of persons in the dream are all purposive and the result of an intropsychic struggle between repressed tendencies and a censor has no solid foundation to stand upon. The entire theory has no scientific basis. There is no particle of proof for a

specific transformation of an antecedent latent idea into a manifest content. There is no proof of the employment of a special symbolism, no proof of an intropsychic struggle in dreamland. Freud's censor resembles the occult conception of a dream god. The entire edifice of dream interpretation is devoid of substance and the fantastic outgrowth of a dreaming psychologist.

All we know of the dream is it to be a fantastic imagery without law and order, an hallucinatory delirium, occurring in a state of dissociation and influenced by certain drugs, such as alcohol, opium, hasheesh and so forth. The dreams which enter our awareness and are remembered, and only these dreams are subject to a scientific analysis, do not show any motive. They are disconnected ideas, coursed in a passive, fleeting way thru the mind. Some consciousness exists in sleep; the senses are not entirely out of play. Hence there must remain some mental activity. This activity is at the bottom of dream life. The dreams remembered are, as a rule, hypnagogic dreams, *i. e.*, dreamt either before falling asleep or just before awakening.

The sources of the dream material are somatic sensations or residue sensations of sound, sight, smell, touch and taste, and pressure on the circulatory apparatus, on the bladder, on bowels and so forth. The dramatization of the dream is formed of presleeping ideas, usually of the last days before the respective dream, but it is also incited by residue emotions emanating from remote affect-toned events. The following may show how somatic sensations and recent presleeping ideas work together in the composition of the dream.

I. At the fall-opening of school, a man, not a teacher, dreams that he is opening a school in the presence of his wife. He first puts on the electric lights, then he tries to

¹The lengthy enumeration of these symbols was necessary to show that there cannot possibly exist any dream without containing one or the other of these sex symbols. Thus every dream is *eo ipso* a sex dream, if we believe in these symbols.

open all rooms on one side of the school, which is built in the form of a triangle. Each room opened is found to be a closet only, with a sink and water running from the faucet. When all the rooms on one side of the triangle had been opened, the wife refused to be present at the farther opening of school rooms, because she is afraid of the devil. So they both leave the school. When the man tries to close the outer door, three devils appear and do not let him. Tired out trying he awakes.

For the pansexualist such a dream would be a veritable mine of male and female sex symbols. School, triangle, closet, faucet are all yonic, and devil and the number three are phallic symbols. For the Freudian such a dream is a typical impotence-phantasy. The fact is that at awakening the dreamer found the room quite lighted by the early sun and that water was running from a faucet out of order. A few days before, the dreamer met with a teacher who was going to open a school which is built in the form of an H. On a rainy day, a few days previously, there was the question who should call for the child, the dreamer or his wife. All these sensations and ideas served as the dream incitors. There is no proof that the dream was overdetermined and that a sex-motive was hidden behind the scene. The psychoanalyst with his *ipse dixi* takes himself too seriously.

As examples where dreams represent remembrances of strongly affective-toned events in the dreamer's past life, entirely remote from sex, may serve the following histories: A young German student left Lithuania for Germany. At the frontier the Russian officials found some irregularity in his passport and did not let him pass. He had to return to the village and to stay in a farmer's house, only a few feet away from the frontier ditch. There he remained hidden till darkness when the Russian soldiers are withdrawn from the immediate

line to a line farther inland. Thereupon he jumped over the ditch and proceeded during the night to the next German city to board a train. This event made such an impression on him that in his anxiety dreams for the last 35 years he lives thru the same experiences. Every time he wakes up from this typical dream he finds himself lying on the left side, pressing his heart.

Another example of remote emotions furnishing the dream materials is the following history: A boy of 15 years while sitting on one of the open country-closets in the yard slipped and fell in up to his knees in the dirt. The disgust made such an impression on him that since this disagreeable strongly-affective experience he has typical dreams where he passes thru the same or similar experiences. At awakening he finds himself pressed either for defecation or micturition. Now these two histories explain themselves in the most natural way. To put a sex-motive behind these typical dreams would be an arbitrary act of the oneirocritic.

That the supraliminal consciousness and reasoning are not entirely extinct in sleep is shown in the following dreams:

II. The writer had been operated upon for gangrenous appendicitis nine years ago. His condition was very grave. In the night of the second to the third day he finds himself, in his dream, in a public Russian-Turkish bath of his native town. There he meets with his parents. His old mother, dressed in her usual street garb, says to him: "Why do you want to suffer here, my child, come with us." Thereupon he answers: "No I cannot go now, I have a little girl, one and a half years old. I shall wait till she is married." Then his father turns to his mother and says: "Leave him alone, he does not want to go with us." Then they both disappear.

Now, in his native small town the superstition prevailed that if one goes away in his dream with a dead person the dreamer will soon die. The writer's parents had been

dead at the time of the dream. But in the dream scene they both appear to be alive, *i. e.*, the subliminal psyche perceives them as being alive. Still there was a reminiscence from the supraliminal psyche that they are dead, hence he must not go with them until his child is independent. Still this reminiscence was not strong enough to represent them as dead in the dream dramatization. We can only conclude from the logic of his answer that some faint reminiscence of their death remained present in his psyche.

In the following dream the reminiscence was strong enough to enter awareness during the dream:

III. About six months before the dream, the writer's sister-in-law died thru an unfortunate accident. In his dream he meets her in a house where he is observing the children at their play. He is delighted to see her looking so well. She is dressed in her usual street costume, as if to go shopping. Suddenly she takes her youngest girl by the hand and tries to go away with her. The writer gets terribly frightened, grabs the child in his arms and exclaims: "Do not go with her, she is dead."

Thus again the deceased appears alive in the dream scene, hence a plain wishfulfilment. Still the irradiating reminiscences from the supraliminal consciousness are strong enough to make the dreamer aware that she is dead and that he must not let her take away her child. This shows that there is a certain cleavage of awareness in a supraliminal and subliminal psyche in the dream just as in the waking state.

Sometimes the dream shows the presence of three degrees of consciousness, the subconscious, the fore-conscious and the conscious.

IV. After having read a great deal about Freud's dream theories the writer dreamt he saw three big watermelons and tried to measure and weigh them. While handling the melons he awakes and tries in this state to analyze the dream, wondering what re-

lation the watermelons could have to sex and comes to the conclusion that Freud's dream theories do not always bear scrutiny. After coming to this final conclusion the writer awakes and finds that the dream analysis was itself made in a dream, like Hamlet's show within a show.

The first awakening was not a real but a dreamt awakening. The dream of the melons was thus the work in the subconscious state, that of the analysis in the fore-conscious state, leading to the conscious state at the real awakening.

That an innocent non-sexual wish may furnish the material for the dream thought shows the following dream:

V. The night before the operation of a near relative which the writer wished to escape from performing he dreams that he had packed all his things to leave the city. He hastens to the railroad station but is often prevented from proceeding by one obstacle and the other. When at last he arrives at the station, the train had left and he has to return home.

Here the basis for the dream wish to leave the city is the wish to escape from operating upon his relative. But both wishes remain unfulfilled, the real wish and the dream wish, contrary to the Freudian theory that every dream expresses a wishfulfilment.

The entire theory about repressed unacceptable ideas, censor, compromise, disguise and so forth is incapable of substantiation. The modern oneirocritics have no particle of proof that the dream is on one hand teleologic and on the other hand intended not to be understood.

But even granted that the theories about infantile sexuality and about the sexual meaning of dreams are grotesque phantasies of a strongly imaginative psychologist, these phantastic doctrines do not detract from the merit and glory of the teacher who has given to the world the new psychology of the unconscious, many features of which even Freud's opponents have absorbed.

With the aid of this psychology we are able to read the secret, unconscious wishes, yearnings and longings of the individual. This psychology also furnishes us the means of fathoming the workings of the racial psyche from prehistoric antiquity down to the present high state of culture. Whatever objection one may have to the overemphasis of the sexual impulse in the infant and in dream, whatever objection to the intellectual monism of Freud who reduces all psychic manifestations to one powerful dominating instinct,¹ even his opponents will admit that his discovery of the psychology of the unconscious forms one of the conspicuous landmarks in medical science.

171 W. 126th St.

RADIOTHERAPY: INDICATIONS AND RESULTS OBTAINED WHEN PROPERLY USED.²

BY

D. Y. KEITH, M. D.,
and
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The treatment of carcinoma is the largest and most serious problem before the medical profession today. This article will not burden its readers with statistics, detailed report of cases, or the technic of treatment; but will as briefly as possible give certain conclusions from personal experience in

¹ Freud's doctrine of the primal libido is a metaphysical proposition and may better be discussed by a philosopher. The writer is more concerned with the outgrowth of Freud's theories, or rather with the ravings of his less philosophical disciples who are trying to outdo their master in their emphasis of gross erotism and pansexualism.

² Read by Dr. D. Y. Keith before the Society of Physicians and Surgeons, of Louisville, Kentucky.

radiotherapy and the trend of the literature as we see it.

In superficial epithelioma we believe a larger proportion can be cured by proper application of the X-ray (which includes proper filtering of the rays) than with the knife, caustics and cautery combined. This is especially true of epithelioma involving the face, and the scarring is much less than from other methods of removal. The pain from surgery, caustics or cautery, ranges from the mildest to the most severe; whereas under radiotherapy the patient remains practically free from pain. Reaction in the tumor and surrounding glandular area may be so marked as to cause pain for twenty-four to forty-eight hours, but it is usually not severe.

In malignant tumors about the face which by secondary involvement have reached adjacent glandular areas, we are positive more benefit can be obtained by radiation, fulguration and surgery than by the mutilating operative procedures hitherto practiced. In our opinion removal of half the jaw (either lower jaw or upper maxilla) is of absolutely no benefit, that on the other hand the patient is rendered more miserable than if nothing had been done. Any treatment which permanently increases suffering and undoubtedly shortens existence should be condemned on every possible occasion.

We have seen a large number of recurrent malignant tumors of the breast where marked axillary glandular involvement had occurred and was incompletely removed. Partial or complete loss of usefulness of the corresponding arm, which not infrequently follows such extensive surgical procedures, constitutes a most serious handicap, and in many instances the occurrence of edema involving the entire arm renders

the patient a pitiful and uncomfortable object to deal with daily. It is our belief that any patient, having a malignant tumor of the mammary gland with secondary involvement in the axilla, will be much more comfortable and live longer with persistent, judicious application of radiotherapy to the entire gland-bearing area of the affected side than by immediate surgical removal. Of course surgery may be later invoked if it seems certain that benefit may be thereby obtained. In other words, we believe surgery of the breast will hereafter be almost limited to removal of the breast after radiotherapy, and be followed by radiation of all the glandular areas.

Several surgeons are now referring to us their patients after radical breast operations for radiotherapy as soon as they are able to leave the hospital. A few years hence complete statistics will be available showing the results obtained by this method of treatment. We believe fewer recurrences will be reported than have been noted from surgery alone. At present those who have seen a goodly number of patients subjected to radical operation for mammary carcinoma are not especially optimistic about surgery. Please recall in your experience the number of patients who have been operated upon for mammary carcinoma, and who have remained well for five years or more, where a positive diagnosis of malignancy was made.

Should you have occasion to compare a primary carcinoma with one that has recurred after operation, you will be impressed with the marked resistance the recurring type has to any form of treatment, whether it be radiotherapy, fulguration or caustics. This increased resistance has been explained by Dr. Holding of New York (who reported two thousand cases embracing nearly

every type of tumor) who made numbers of microscopic sections of both primary and recurring carcinomata. In the primary tumor he found the blood supply was quite limited, and that radiotherapy caused strangulation by reduction in the blood supply. In the recurring type the blood supply was greater than the tumor in development, therefore it would seem impossible to destroy the tumor mass by strangulation as in primary neoplasms. We believe this explains the advantage of three or four series of X-ray applications after operation, as destruction of remaining cell nests can be better accomplished early before a well established blood supply has been formed. In deep-seated malignant tumors, such as those of the abdomen, chest etc., the principles outlined will hold good so far as post-operative radiotherapy is concerned.

At present we have under observation and treatment by radiotherapy several patients with uterine disorders, ranging in age from thirty-one to forty-six years, and thus far the results obtained have been satisfactory. In three of these we are expected to produce an artificial menopause, and neither patient has menstruated more than once since treatment was commenced six months ago. In two others continuous bleeding for more than one year has been controlled within two weeks after treatment was begun, the patients experiencing normal menstruation two weeks later—excepting that the flow was very profuse. We anticipate good results in these cases. In another where menstruation was prolonged for a period of two weeks, with great pain in the pelvis and lower lumbar region, normal menstruation with cessation of pain was experienced after two series of treatment.

Our greatest objection to radiotherapy in uterine affections is the likelihood of

mistaken diagnoses, and in such instances our efforts might prove futile. In uterine fibromata without complication of the adnexa, or where surgery was contraindicated, many brilliant results have been reported.

Since this report was written a total of twenty-two patients has been rayed for uterine hemorrhage. In a number of these cases more than two years have elapsed with no recurrence of uterine bleeding. Many of the younger patients (under 30 years) have had a return to normal menstruation.

Our results in goiter have been satisfactory, tho only a few cases of this kind have been treated. In our first cases treated four years ago, the patients have remained well without any other treatment. The first patients were treated by the old technic of small doses given frequently, with very little filtering of the rays. At present we are using heavier doses with an increase in the intervals between treatments. Many reports in recent literature would lead one to become very optimistic about the results, as practically all cases respond to the later technic of heavy doses. The improvement of the patient is early noted, first showing reduction in pulse rate and nervous phenomena, the tumor being the last clinical evidence to disappear.

The most rapid clinical improvement is seen in the treatment of spleno-myelogenous leukemia, the blood picture showing a change within a few hours after raying the long bones. The blood serum of a patient so treated given to another individual with spleno-myelogenous leukemia, who has not been exposed to the rays, will produce a change in the blood picture.

A middle-aged female recently came to us presenting the following blood count: Erythrocytes 3,800,000, leucocytes 120,000, myelocytes 30%. Splenic enlargement

marked, the lower border being on a line with the umbilicus. Her entire bony system was given two series of treatment with the X-ray about ten days apart, and at the end of one month her blood picture showed: Erythrocytes 4,000,000, leucocytes 4,800, myelocytes 8%.

LOUISVILLE RESEARCH LABORATORY.
730 Atherton Bldg., Louisville, Ky.

EXAMINATION OF BLOOD.

No. 1.

	No.
For Dr. Keith. Patient Mrs. S.	Date 4/4/17
Hemoglobin %	65
Blood pressure	
Red Cells in Cu. Mm.	3,800,00
White Cells	120,000
Color index	
Unstained	

STAINED SPECIMEN.

Erythrocytes.....	pale.....	Lymphocytes.....
Megalo or Microcytes present..	Mononuclears..	8
Poikilocytes.....	present..	Transitional..
Poichromotrophilia present..	Neutrophiles..	60
Erythroblasts.....	present..	Eosinophiles..
Megalo or Microblasts present..	Basophiles..	
Blood Platelets.....	few.....	
Myelocytes		30
Parasites, bacteria		none found
Cultures		
Wassermann Reaction		
Widal Test		
Remarks.....	Spleno-myelogenous Leukemia	

L. R. Laboratory. Signed
J. D. ALLEN.

No. 2

EXAMINATION OF BLOOD

	No.
For Dr. Keith. Patient Mrs. S.	Date 5/5/17
Hemoglobin %	
Blood pressure	
Red Cells in Cu. Mm.	4,000,000
White Cells	4,800
Color index	
Unstained	

STAINED SPECIMEN.

Erythrocytes.....	pale.....	Lymphocytes.....
Megalo or Microcytes present..	Mononuclears..	20
Poikilocytes.....	present..	Transitional..
Poichromotrophilia present..	Neutrophiles..	68
Erythroblasts.....	none....	Eosinophiles....
Megalo or Microblasts none....	Basophiles....	2
Blood Platelets.....	few.....	

Myelocytes	8
Parasites, bacteria	
Cultures	
Wassermann Reaction	
Widal Test	
Remarks	

L. R. Laboratory. Signed
J. D. ALLEN.

No. 3.

EXAMINATION OF BLOOD

	No.
For Dr. Keith. Patient Mrs. S. Date 6/7/17	
Hemaglobin %	
Blood pressure	
Red Cells in Cu. Mm.....	
White Cells	5,000
Color index	
Unstained	

STAINED SPECIMEN.

Erythrocytes	Lymphocytes
Megalo or Microcytes	Mononuclears
Poikilocytes	Transitions
Polychromotrophilia	Neutrophiles
Erythroblasts	Eosinophiles
Megalo or Microblasts	Basophiles
Blood Platelets	
Myelocytes	0
Parasites, bacteria	
Cultures	
Wassermann Reaction	
Widal Test	
Remarks	

L. R. Laboratory. Signed
J. D. ALLEN.

The improvement clinically was as rapid as the changes in the blood. Within one week the patient was attending to her household duties, she gained in weight, her color improved, and after two weeks she assured us that she felt as well as she had for eighteen months or longer. It is probable she had been affected for at least a year before we saw her, as the splenic enlargement had been noted by her physician in a routine examination during slow convalescence following an attack of la grippe.

All of the patients we have treated for spleno-myelogenous leukemia have improved rapidly and have remained comfortable under frequent applications of the

X-ray, some of them showing no indications for further treatment for six or eight months. A blood examination is required at least every four to six weeks to keep a proper index in these cases. Blood changes are noted from three to six months earlier than clinical symptoms.

In eczema every patient treated by radiotherapy has shown immediate improvement. In a few cases the results obtained have been brilliant and seem to be permanent. One patient with palmar eczema that had resisted medicinal applications for nearly two years, and who had abstained from the use of water on her hands during this time, was completely cured under three applications of the X-ray and has remained well for more than two years. Within three weeks after treatment was begun she was using soap and water and was attending to her household duties without the use of gloves which she had formerly worn. This was one of the most pleasing results we have ever observed.

There are many other skin lesions in which definite results have been reported but our observations have been too limited to warrant conclusions from personal experience.

At present we have under treatment six or seven patients with psoriasis, and hope to give a detailed report with our conclusions concerning these cases at a later date.

Pleurisy.—It is stated that iodoform one part, with collodion fifteen parts, mixed and applied night and morning, removes pleurisy pains and chest pains of consumption.

Charcoal.—Fresh animal charcoal is more efficient than wood charcoal, but charcoal prepared from blood is the best.—*Critic and Guide.*

HEALTH AND HYGIENIC STANDARDS OF INDUSTRIAL WORKERS.

BY

CARL SCHEFFEL, Ph. B., M. D.,
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The preservation of the health and limbs of the industrial worker has been given considerable attention in recent years by medical and legislative bodies, so that today communities, manufacturers and individuals have come to realize that to safeguard the health and limbs of the industrial worker carries with it remuneration far in excess of the costs.

Industrial health and safety commissions have been created, workmen's compensation laws have been enacted and compulsory health insurance is being much talked and written about. All of these measures are aimed at elevating the hygienic standards of the industrial worker, safeguard him from accident and care for him in time of misfortune.

A study of numerous bulletins, pamphlets, reports and announcements of some of these various boards and commissions strikingly reveals the fact that extreme endeavors are being directed towards compelling the manufacturer to comply with innumerable laws, rules and regulations, and forcing him to install much valuable equipment for the purpose of safeguarding his employees' health and limbs; while comparatively little is being done to teach the worker himself to appreciate the value of sanitation and accident prevention, and much less to compel him to observe reasonable rules and regulations to that effect.

As a student of industrial medical problems I may be permitted to take a broad view of the situation and give some con-

sideration to the practical difficulties encountered in attempting to apply measures aimed at health conservation and accident prevention among industrial workers. It is one thing for an industrial safety commission having mandatory powers to prescribe these measures; but it is quite another problem to carry them out. As matters now stand it is only too often the case that an industrial establishment is compelled to spend large sums of money for the installation of sanitary and safety devices only to find that the employees will not avail themselves of them after they have been installed. For instance, respirators have been prescribed for many dusty occupations, but most reports seem to agree that only a few workmen can be induced to wear them where they are available. Much has been written of the "kiss of death" and shuttle-sucking practiced by weavers, but I dare say that not one in a thousand weavers will use the hook provided to do away with this dangerous practice. Even the wearing of caps to protect the hair, and the wearing of tight sleeved garments among women workers will not be voluntarily complied with by the majority of them. These and many other features intended to safeguard the industrial worker are oftentimes viewed by him as unwelcome innovations, intended only to inconvenience him.

As a mass, industrial workers cannot as yet understand and appreciate the value of many measures instituted to safeguard their health and limbs; and if they happen to interfere in the least with their acquired habits or entail much inconvenience they are apt to be condemned instead of appreciated. To be sure, there are today many thousands of industrial workers who appreciate measures intended for their welfare; but there are many thousands more who

look upon such measures with prejudice and skepticism, and it is usually the latter classes who need them most. Workmen who have shown extreme intelligence in forming trade-unions for their economic protection have shown animosity towards sanitary and safety movements thru the medium of these very organizations. The value of such measures as medical inspection and examination of industrial workers and compulsory health insurance has as yet failed to be grasped by the great majority of workers notwithstanding the fact that such measures would result in benefitting them the better to wage the battle for economic existence.

In view of this attitude it becomes apparent that the majority of industrial workers need much education and enlightenment along these lines. Under present conditions the employer is constantly being bombarded with ever new and more stringent rules and regulations governing the health and safety of his employees, and in order to carry them out he is obliged to resort to compulsory measures because the mass of the workers fails to appreciate their value due to lack of education along these lines. The outcome is that a measure primarily intended to benefit the worker is viewed by him as a burden forced upon him by an exacting employer.

It is by no means my contention that compulsory measures intended to safeguard the health and limbs of the worker are of no value—far be it from this—but what I do contend is that the manner in which these measures are applied is many times not productive of the maximum results considering the time and money expended for them. For instance, I believe the sanitary standard existing in any industrial plant which is not being governed by compulsory

sanitary rules clearly portrays in a most striking manner the sanitary conditions prevailing in the homes of the majority of its workers. There is every reason for believing that many industrial establishments whose sanitary standards are poorest, and whose number of infected cases subsequent to industrial accidents are the highest, have among their employees a preponderance of those whose sanitary standards at home are the poorest, and this entirely irrespective of economic conditions. Soap, water and "elbow-grease" are so cheap that even the poorest paid industrial worker is enabled to make free use of them. All that is needed for their employment is an appreciation of their value.

It does not seem logical to expect an employee to show much enthusiasm for health and safety movements at an industrial establishment when his home surroundings are the picture of uncleanliness and disorder. A worker who daily sees his sidewalk littered with filth or whose backyard is allowed to become the dumping-ground for refuse, cannot be expected to easily comply with strict sanitary rules during working hours.

In many ways the average man is only a grown up child. What he sees and does in his own home he is apt to look upon as being acceptable outside. If the municipality in which he resides permits unsanitary conditions to exist in his home he cannot understand why similar conditions should not be tolerated at his place of employment. A workman who is allowed to spit on the sidewalks of his town without interference will spit on the floor at his place of employment and will resent those in authority if they endeavor to prevent him from so doing.

Assuming that there is a dearth of ap-

preciation of sanitary and safety measures on the part of the workers as a mass, how are we to remedy these conditions? It is my opinion that the industrial worker should be educated outside as well as inside of the factory. In fact he is apt to take more kindly to educational endeavors undertaken by outsiders than he is towards those undertaken by his employer. There should be a much closer cooperation among boards of health, sanitary engineers and those endeavoring to improve the hygienic standards of the industrial worker. Teach the worker how to live better from a hygienic standpoint at his home and in public, and he will then more readily cooperate with those endeavoring to safeguard his health and limbs at the workshop. If the many thousands of minors employed in industry who are now compelled to attend continuation schools were taught such subjects as general and personal hygiene and accident prevention rather than some subjects for which they neither care nor have use, I believe a more enlightened industrial worker would be produced in a few years from now. Especially is the value of such instruction comprehended when consideration is given to the fact that most of these youths shall follow an industrial career for the rest of their working days.

As conditions now exist the industrial worker receives almost his entire knowledge of industrial sanitation, and accident prevention measures from his employer. With the present relationship of capital and labor it is only natural to see the worker view any and all measures inaugurated by his employer as being for his employer's benefit rather than for his own. If greater and more rapid progress in the appreciation of industrial hygienic measures and accident prevention is desired on the part of the in-

dustrial worker there are two principal means by which this may be accomplished. First teach the worker how to live in a sanitary manner at home and force him to obey the sanitary code of his home town to the letter; secondly, educate him in personal hygiene and accident prevention thru the medium of public lectures, moving pictures and the daily press, all of which are at present hardly utilized.

1127 Commonwealth Ave.

THE TREATMENT OF EXOPHTHALMIC GOITRE.

BY

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In speaking of exophthalmic goitre, I shall include, for the sake of brevity, diseases of the parathyroids. From the surgical removal of either of these glands much valuable clinical data have been obtained. We know that the functions of these two glands differ from each other, but in all probability their close anatomical association is not without reason. I shall therefore treat this subject as tho the thyroids and the parathyroids were directly dependent one upon the other. For clinical and especially therapeutic reasons this seems advisable.

In no department of medicine is the etiology of a disease process of more importance than in the practice of physical therapy. The cause must be sought for and such agents employed as will keep the future activity of the same in abeyance.

In exophthalmic goitre we are not quite sure of the exciting cause. Here, as in many similar diseases, the pathology throws but little light upon the actual

conditions. The visible pathology is the result of something which has preceded.

From laboratory experimentations we are warranted in concluding that the etiology of this disease is to be found in a perverted metabolism. There is every possibility that the enlargement of the gland was in the first instance a physiologic response on the part of that gland to enable it to increase the performance of its function. Assuming that the enlargement of this gland supplied the necessary element in proper quantities to the system, then we would have cases with a simple enlargement of the gland and no other symptoms. This is just what we do have in simple enlargement of the gland (simple goitre). Sometimes these glands grow to an enormous size; beyond pressure symptoms, which may be present, these patients complain of no other inconvenience. Another phenomenon, worth noting, is the fact that in certain regions (Swiss Alps) goitre is endemic. Tourists visiting there frequently develop an enlargement of the thyroid which quickly subsides when they leave the region. We have here a clear demonstration of the physiologic response of a gland to a sudden demand by the system. The therapeutic lesson that is impressed upon us is this: the enlargement of the gland is not the disease of exophthalmic goitre; again, our therapeutic measure ought not to be something which has for its prime purpose the reduction of a physiologic enlarged gland.

In exophthalmic goitre we are dealing with something very different from the mere enlargement of the gland. In this disease we recognize four cardinal symptoms; thyroid enlargement, exophthalmos, tachycardia and tremor. Since we have considered the gland enlargement as physiologic, we have remaining exophthalmos, tachycardia

and tremor. Exophthalmos appears in other conditions, such as aneurisms, inflammation and tumor of the orbit, atheroma with dilatation of the arteries, chronic cyanosis of the head and lead poisoning. In whatever other diseases exophthalmos may appear, it is a symptom-complex with tremor and tachycardia. Either or all of these three symptoms may be produced in any kind of a toxemia. Neither does it matter whether the toxic material is introduced from without or whether it is formed within the body (autotoxemia). As a matter of fact the symptom complex, the exophthalmos, the tachycardia and tremor, point strongly to some irritant, some toxic material of auto-gogenous origin. More than that, it strongly suggests suboxidation.

Physiologically speaking, our therapeutic measures ought to consist of something that would supply that which the thyroid gland, even in its enlarged state, fails to furnish, or assuming that the gland does provide an adequate amount of the particular secretion, but the system fails to make use of it, then in such a case we would require some agent capable of compelling more normal metabolism. In the first instance thyroid extract is clearly indicated and clinical experience has abundantly shown this to be a proper therapeutic agent. Yet there are some cases, which not only fail to improve under thyroid extract but promptly get worse. In such cases, we are again dealing with two possibilities: first, either the patient's thyroid extract is excessive or the system fails to make proper use of it. Such a proposition leads us to inquire: what is the function of the thyroid secretion? Without too much speculation, iodin seems to be the active agent of this secretion. Of all the medicinal agents that we have, iodin occupies the

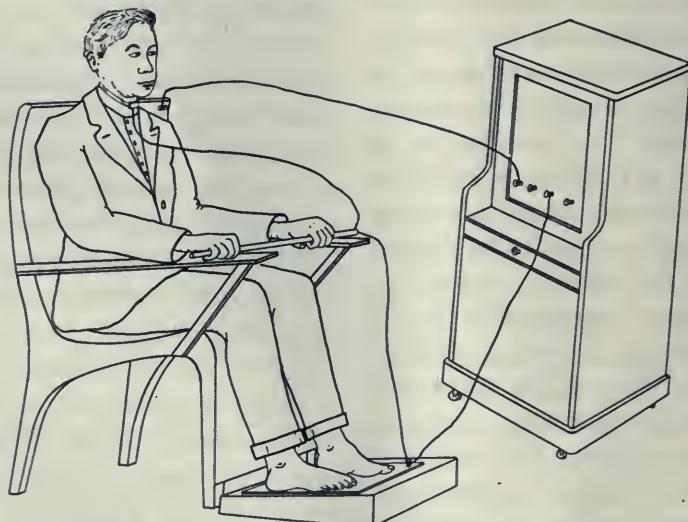
first place as a reducing or oxidizing agent of animal tissue.

If then the system is adequately supplied with such a powerful reducing agent as iodin, yet fails to properly reduce its own toxines, physiologic therapy would point to some agent or agents capable of performing this function for it.

Diathermia is one of the most logical treatments that suggests itself.

Technic.—Exophthalmic goitre is a constitutional disease; since it is an open question as to whether the gland is enlarged as the result of inadequacy or whether the system as a whole fails to make use of the enlarged gland's activity, it behooves us to consider

feet of the patient rest upon a metallic foot plate or ankle electrodes may be used instead of the foot plates. A bar electrode is held with both hands or wrist electrodes may be employed. A piece of flexible tin foil is placed over the region of the thyroid gland. These three electrodes are connected in such a manner that they form one pole. The amount of current must be controlled by the sensation of the patient. As a general rule about 800 to 1,000 milliamperes, as registered by a Wappler hot wire M. A. meter, is an average dose. Of equal importance, with the amount of current passing is the time consumed. The treatment should be repeated daily and must last for at least one hour.



DIATHERMIA FROM A HIGH-FREQUENCY APPARATUS.

One pole is connected to an auto-condensation chair, the other pole is tri-furcated, its electrodes are distributed to the various parts of the body, feet, hands and throat.

both possibilities in our therapeutic measures. Let the patient be seated in an auto-condensation chair, which is connected to one pole of a high-frequency apparatus.

The other pole is so arranged that a foot plate, a hand electrode and a throat electrode are connected at the same time. The bare

The result of such a treatment is very far reaching in its physiologic effects.

1. The entire body tissue is heated from one-half to one degree above normal. During this heating process, to which the patient contributes no energy, hyperoxidation takes place. If a patient's urine is tested for

urea just prior to the treatment it may be 1.5 urea, while one hour later, immediately after the treatment the urea output frequently reads as high as 3.5. Such an increase in urea can only be the result of hyperoxidation.

2. Since the output of urea has increased at least for the time being, from 25% to 100% or more, it proves that the system has reduced something. The mere fact that the reduction took place has put the system in the habit of again functioning in a more physiologic manner.

3. The throat electrode is placed over the gland because, after all, there is a close connection between the function, nonfunction or overfunction of the thyroid gland and the general system. The sharing of this gland, in the localized heating of itself and the body as a whole, creates an important connecting link in the reestablishment of harmonious function.

4. Seated, as the patient is, in the autocondensation chair, the full length of the spine is subjected to a gentle, nevertheless efficient counter irritation. This irritation acts as a stimulation to the terminal nerve fibres in the skin. In this disease the sympathetic nervous system is more at fault than anything else in the entire economy. That an impression is made upon the sympathetic nervous system is shown by the immediate slowing of the pulse, the result of vessel dilatation. The whole body feels hot and the cheeks are flushed. Visible perspiration is upon the forehead, tremor ceases and the patient is at ease. Such symptoms could not come about without the intervention of the sympathetic nervous system.

The cardinal symptoms of the disease are enlarged thyroid, exophthalmos, tachycardia and tremor. The enlargement of the gland *per se* should not be considered. The re-

maining three symptoms are the immediate result of hypertension. Anything which is capable of relieving the hypertension is bound to modify these three remaining symptoms.

Diathermia does not do this, as a dose of morphine, bromide or chloral by depressing the automatic centers, but rather by stimulating all of the sympathetic functions into producing relaxation of the entire circulatory apparatus in a perfectly physiologic manner.

The moment that the sympathetic centers again exercise control of function, from that moment on the nervous system, the circulatory apparatus and the metabolic function, operate physiologically.

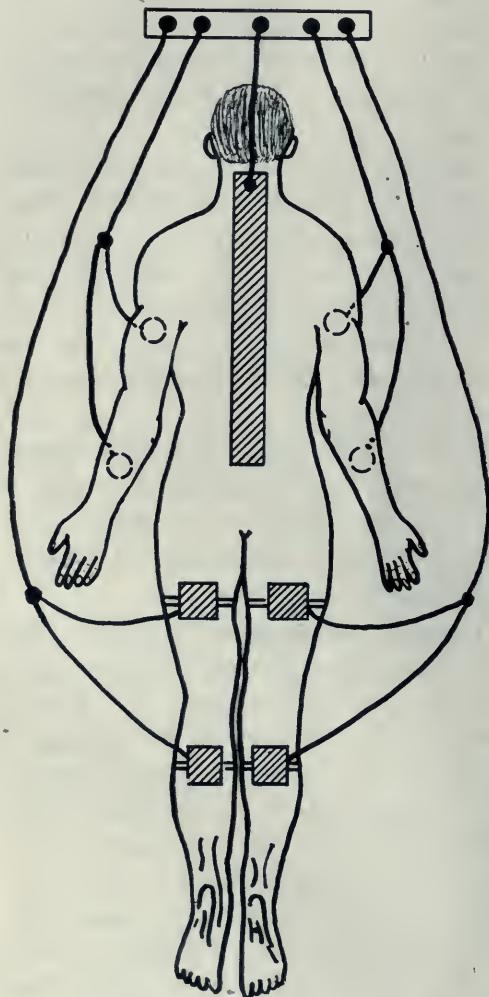
It is therefore to be expected that the exophthalmos, the tachycardia and the tremors cease.

Since the after-effect of each treatment lasts from two to six hours, it is easy to see why the oftener the treatment is repeated, the better and the more lasting the results.

General Faradization.—Another valuable tho much neglected physical agent in abnormal metabolism is general faradization. The reason for the neglect of this agent is found in the fact that the faradic current, like so many other electric modalities, has been much abused. Of course, strictly speaking, it was the patients who were abused. The faradic current is the best means for causing physiologic muscular contractions of the voluntary as well as the involuntary system. Every time that a muscle contracts, providing that it is in contact with its trophic center, it performs its physiologic function. Such performance of physiologic function means metabolic changes. The production of urea, the end product of catabolism is

materially increased by physical exercise, rhythmic muscular contraction and relaxation.

A properly constructed faradic apparatus with at least four separate poles will cause rhythmic muscular contractions and relaxations. In general faradization in cases of



THE FARADIC APPARATUS.

This apparatus has one universal or common positive electrode and four negative ones. Each negative forms with the common positive a separate circuit. These four circuits produce rhythmic muscle contractions, while one circuit is operating the other three are resting. All of these faradic currents are descending, from the spine to the periphery; it is most unphysiologic to cause muscle contractions with ascending currents.

goitre, the poles must be placed as in the diagram.

It must be noted that four distinct sinusoidalized faradic currents are causing regular muscular contractions. Each group of muscles, after slowly and gradually contracting, relaxes in a similar manner, then rests for $\frac{3}{4}$ of a period while some other muscle group undergoes a similar process of physiologic function. Since each one of the four current phases is controlled by its own rheostat, the smaller muscle groups receive a correspondingly smaller amount of energy, the larger muscles *vice versa*. In this manner all of the muscles may be caused to undergo a rhythmical muscular contraction and relaxation, exactly the same as tho the patient was taking a course in physical exercises. A notable difference is in the fact that in these contractions the patient is not called upon for the furnishing of his own energy, that is conserved for recuperative power. Since every muscular contraction is accompanied by an increase in the urea output, it follows that general faradization is indicated in all such conditions where suboxidation seems to be a causative factor.

Disappearance of most of the symptoms may be accomplished in from three months to one year. The gland, during all of this time, may remain more or less enlarged. If rapid decrease in the size of the gland is desirable for cosmetic reasons, it may be accomplished by employing the positive galvanic current over the gland, while the negative pole rests over the three sympathetic cervical ganglia. The galvanic current must be used in rather large doses. A negative spinal electrode 3 by 12 inches is placed over the spine so as to include the cervical region. A smaller positive electrode 2-2 inches is placed directly over the thyroid gland. The positive or active pole attracts the

electro-negative ions, acids, chlorine and oxygen; these tend to contract, dry and harden the local area. The use of potassium iodid or other substances to affect the gland structure is unphysiologic, unscientific and unnecessary.

Some glands respond remarkably well to X-ray exposures. When the X-ray is used a filter for the softer rays is imperative; the parallel spark or the current back up must be between 4 and 5 inches, with 10 milliamperes in the tube. Such a dosage refers only to a Wappler transformer measured by a Wappler meter. The dose of every X-ray apparatus depends upon what portion of the inductive wave is utilized. As soon as erythema is noticeable over the gland, all treatment must cease until the complete disappearance of the redness; from ten days to three weeks may be required.

Relapses.—Out of 14 cases on my records prior to 1916, six have remained cured and are well; 5 showed some recurrence of tachycardia and tremor in varying degrees, they again responded to diathermia. In 2 cases nervous symptoms manifested themselves six months and two years, respectively. The one case, which showed such early recurrence went on to hallucinations and was placed in a sanitarium; whether this latter condition had anything to do with the original disease is not knowable. One case died of some intercurrent disease.

The more careful the relapsing cases were as to observance of diet, the easier it was to influence them with diathermia, the shorter was each relapse and the longer the intervals. While 9 of the patients were hyperacid, five were distinctly hypoacid. It is on this account that no universal dietary can be prescribed in exophthalmic goitre.

Out of 8 cases treated since 1916, five are

practically well. Three are under treatment. The technic in these recent cases is the same as in those prior to 1916. In addition to the above outlined treatment, if a case shows a tendency to prolonged anemia, iron and arsenic intravenous solution (Loeser) is used once per week for from four to six weeks.

301 West 91st St.

NARCOTIC DRUG ADDICTION IN THE NEW-BORN: REPORT OF A CASE.

BY

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In view of the present wide publicity and awakening interest in the matter of narcotic drug addictions, the case I am reporting should be of interest to the medical profession, and should open up for discussion and scientific consideration many points of clinical and therapeutic value.

Insofar as I know, but few such cases have been medically reported. Several instances have appeared in the new newspapers, coming from such institutions as the New York Tombs where addicted women under arrest have been confined, but such cases have been announced more as curiosities than as clinical problems for scientific consideration.

Dr. Ernest S. Bishop of New York has discussed a case seen by him in consultation and observed for a time afterwards. Dr. Charles E. Terry¹ of Jacksonville has reported several cases coming to his attention as health officer of that city. The occurrence is mentioned by several other writers with-

out much discussion of its clinical or disease problems.

The mother of my patient was a woman of twenty-seven years, who had been addicted to opiates for over two years. Her general and physical condition was good. Her pregnancy was uncomplicated and uneventful. Its course was apparently uninfluenced by her addicted condition so long as opiate drug was supplied to her in the quantities necessary to maintain her free from the symptoms of opiate drug withdrawal, or body-need for opiate.

Labor was accomplished during insufficient supply of narcotic drug, practically in a condition of withdrawal or drug-need. I had explained to her the inhibitory action of opiate, and she had concluded that the opiate would slow her pains and prolong her delivery and might jeopardize the child's life. She, therefore, refused a normal supply of opiate during labor. She was in a highly excited state, when labor was finally completed, very restless, suffering from the usual distresses of opiate need, and just before the final pains attempted to jump out of the window to end the misery of combined labor pains and opiate deprivation. Labor pains were very energetic, and delivery was accomplished with little difficulty.

The baby was a well-nourished, healthy appearing child. From the moment of birth, however, it was very restless. This restlessness is probably to be interpreted as early opiate need, due to the insufficient amounts of opiate taken by the mother just previously. The symptoms and signs of drug-need developed in the infant identically with those of its mother, in character and in sequence. The restlessness increased; it began to yawn and sneeze. Its face became pinched and its color poor. It drew up its legs as if

in cramps, and cried out as if in pain. Its pupils became widely dilated. The chin was in a constant tremor reminding observer of the chattering of an adult in a chill. Finally diarrhea began, and the infant showed signs of collapse, with general convulsions.

Nothing seemed to alleviate these symptoms, until finally a drop of paregoric in water was given, using a small eye-dropper to put the paregoric in the mouth. Five drops of paregoric were given at intervals of five to ten minutes, causing a progressive subsidence of the symptoms and a return to normal.

It is of interest to note that the progress of symptom alleviation followed exactly the progress stated by Bishop in adults, that is, the symptoms disappeared in ratio to the amount of drug administered, those last appearing going first, and the restlessness first appearing being the last to disappear.

Following the administration of the final dose of this first series of paregoric, the infant became quiet and in every way acted and seemed perfectly normal.

The mother was very anxious to avoid continuing to give the opiate to the child, and delayed its administration as long as possible. The child would develop the above symptoms, however, at intervals of about eight hours after opiate administration, the severity of the symptomatology varying according to the length of time the mother delayed in administering the opiate.

When lactation was fully established, the necessity for paregoric administration ceased. The infant apparently obtained its narcotic supply thru the mother's milk. The mother nursed the child at regular intervals. Just before the time for nursing, the child would display a restlessness unlike that seen in normal children, which would subside immediately after nursing.

Following in strict accord with Bishop's² observations upon adults, the intervals of relief from withdrawal symptoms and the severity of the withdrawal symptoms were invariably in proportion and ratio to the length of time between doses and also to the amount of opiate secured thru the mother's milk. The mother at times endeavored to reduce the amount of her own opiate intake. This reduction was immediately reflected not only in her own physical condition but in that of the nursing infant.

When the mother went for a longer interval before taking her own opiate, or when she took it in diminished quantity, the child displayed earlier onset and greater severity of withdrawal symptomatology, it being necessary at times to supplement the opiate derived from the mother's milk with a drop or two of paregoric. Apparently the amount supplied to the child varied with the amount present in the mother.

The picture of physical symptomatology, and of suffering, in the child was identical with the picture in the mother; the various symptoms occurring in the same sequence and relative severity, and following the same reactions to opiate administration, and also yielding to nothing other than opiate administration.

It seems to the writer, that cases such as the above deserve closest consideration and interpretation. They certainly upset the generally accepted theories of opiate addiction expressed by the older writers. It seems absurd and impossible to attempt to explain any of the phenomena displayed by psychiatric or psychologic approach on the old basis of sensuous enjoyment, of deliberate indulgence, morbid curiosity, vicious or criminal instincts, etc.

The manifestations in this case were be-

yond all argument purely physical in their origin and in the machinery of their production. Something in that infant's body caused the physical manifestations it exhibited. This something was manufactured by the body of the infant itself, and not merely supplied to it thru the umbilical circulation from its mother, otherwise it would not have continued to manifest the symptomatology after birth or after a reasonable time following birth. The organs of the infant while still in utero developed the function of protective mechanism against opiate, and carried on that function after birth.

A recent review of the scientific literature of addiction, by Dr. DuMez⁶ of the Public Health Service, expresses the only explanation at present logically tenable, based on the clinical work of Bishop and on the laboratory work of Hirschlaff⁴, Gioffredi³ and Valenti⁵. Medical literature gives no other satisfactory explanation of the clinical manifestations, physical phenomena and reactions of this case.

Bishop's² theory of antidotal toxic substance production within the body gives a machinery of addiction-disease which explains every manifestation, phenomena and reaction displayed by this infant. The experiments of Gioffredi, Hirschlaff and Valenti point to the same conclusions. The condition in this infant is to my mind very important for the appreciation of the medical profession and of the laity, in the solution of the narcotic drug problem.

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THE ETIOLOGIC IMPORTANCE OF DENTAL INFECTIONS.

BY

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New York City.

The cooperation of physician and dentist every day becomes more necessary since it has been discovered that so many remote diseases, which heretofore puzzled the physician, have been caused by the teeth. Notable among these are rheumatic fever, neuritis, the heart, arthritis deformans, nephritis, the nervous system, diseases of the stomach and the intestines, the appendix, the blood-forming organs, paralysis, etc.

The mouth is a fine breeding spot for harboring the germs causative of most of the virulent infectious diseases.

The writer has seen many diseases traceable to apical infections or blind abscesses. Some of these have been strange, indeed, because they have caused bodily ailments so far and remotely removed from the teeth, that even the most expert diagnostician would hardly suspect their etiologic importance. On the other hand, in many obscure cases, not a few dentists have recently been too prone to blame the teeth. While experience has shown that these apical infections should never be regarded lightly, judgment and common sense require that the condition of the teeth be studied carefully and examina-

tions be conducted with thoroughness.

A remarkable case showing, however, the menace of apical infections came to my attention a short time ago. The patient, a man about fifty had, some two years before, lost the sight of his right eye. It was removed and he wore a glass substitute. Sometime in September he had considerable trouble with his good eye, noticing a gradual formation of dark, floating clouds, which severely interfered with his vision and threatened blindness. He visited a prominent specialist who, after treating the eye for a short period without success, suggested X-rays of his teeth, which was done. All of his teeth were found to be vital, except the upper, right, canine root, which carried a pivot. This root showed a well-defined apical abscess. The root was extracted, dropped into a culture tube, and taken immediately to a bacteriologist. A culture was made, and a virulent growth of streptococci was discovered. A vaccine was then made, and this was given four days apart, up to sixteen injections. Other internal treatment was given by the physician, including hot compresses and the inevitable K. I.

The eye improved slowly but surely, and now seems entirely well.

The vaccine seems to have effected a further cure than the eye. It seems that the patient, for many years, suffered severely with his intestinal tract. To use his own words, in particular: "A slow diminution of pain in a certain spot of my intestines, where and for a long time, suspected some kind of trouble." (Periodically small ulcers.)

This intestinal trouble seems now to have left him, his general condition is better than it has been for years, he has gained considerable weight, and feels like a different man.



LONDON LETTER

(From our Regular Correspondent.)

THE HOUSING QUESTION.

The British Government is obviously determined to start at once upon a comprehensive plan for the betterment of the housing of the working classes and at the same time they will promote and forward the objects of existing schemes for the purpose. The movement is of the utmost importance to the public health of the nation for two reasons. The first and most obvious one is that the three great scourges of modern civilization, at any rate so far as their part is played in this country, owe their rampant growth and permanent mischief largely to bad housing. Over and over again the medical profession at large, those specially interested in tuberculosis—like tuberculosis medical officers, school medical officers and the staffs of consumption hospitals—have urged that bad housing of the poor is the ground of the evil with which they are attempting to deal. In the overcrowded and ill-ventilated home a disease like tuberculosis spreads; but not only has the bad home this sinister influence on the well, it is also the main factor in promoting the progress of the disease in those already infected. The early cases, diagnosed, removed from the unwholesome environment, treated medically and dietetically, would, if the future offered a better home, have splendid chances of permanent recovery—in the upper and middle classes thousands of such fortunate issues are chronicled in the case books of practitioners—but the poor man has to go back to the evil surroundings whence he emerged and his chances of firm restoration to health are, by doing so, much minimized.

If tuberculosis is the principal scourge of our population, the results of alcoholism and venereal diseases play nearly as sad a part in our public health and vital statistics. Now the connection of alcoholism with noisome domestic conditions is very close. Within the walls of the *taudis*, life is so depressing that those responsible for the upkeep of what is nicknamed "home," feel a perpetual call both for stimulants and for sojourn in more comfortable places. Drink at home and drink abroad are consequently taken to excess, and the morale of men and women alike is sapped. Domestic duties are neglected, their work is poor and employment is soon lost, disease and hunger follow, while the children die like flies.

The connection between venereal disease and evil domestic environment is not so close. In the class of society under consideration there is no suggestion that either the man or the woman escapes from the miseries of domesticity to the charms of illicit connection—this is not

the sort of thing that occurs in the lower class in any nation. But it is undoubtedly that the filthy home, especially if it has already produced in its inhabitants the evils of alcoholism, conduces to a lack of moral restraint. Those who live like animals, and who are overcrowded in garrets as rabbits may be overcrowded in burrows, must lose their sense of modesty as well as their powers of, or inclinations for, restraint, while should disease follow indulgence, as in these circles it usually does, there are no facilities for the prevention of its spread. Therefore, it is of the first importance to the public health of this country that the present disgraceful housing of the great bulk of the working classes should be set in order immediately.

But there is a second reason for desiring this reform to be expeditious, and it is this: The sinister influence of bad housing in connection with tuberculosis, venereal disease and alcoholism causes those in charge of the health of the people to find their efforts paralyzed when they attempt the work of reform in other directions. The tuberculosis officer reports to his authority that the incidence of tuberculosis upon the population of a town has now reached the appalling figure of *x* and if unchecked may go even to *y* or *z*, and he demands certain measures for the improvement of notification, for the institution of tuberculosis clinics or for the coordination of his work to that of his brother practitioners. He demands improvement in school buildings, and money for the building and maintenance of special hospitals, sanatoriums, rest-houses, playgrounds and similar aids to convalescence. The *supine* local authority always replies with a sympathetic *non possumus*, taking the ground that as long as the evils of housing, which they are unable to counteract, are in full sway, it is a waste of time and money to look elsewhere for reform. This of course is perfect nonsense. If a large number of patients on return to their wretched homes do relapse, an equally large number, also, on their return begin immediately to institute domestic improvements. Recalling the kind of environment in which their lives have so materially improved; the tendency is to attempt to obtain for themselves and their families in their homes something of the standards of cleanliness, decency and order, the benefits from which are so evident. A well carried out regimen against tuberculosis is a liberal education in domestic economy, and this is a point to which sufficient attention has not been drawn.

The Local Government Board has now issued for official use a Memorandum on the preparation of State-Aided Housing Schemes; the purpose, of course, is to assist local authorities to meet the shortage of working class housing accommodation, which is generally recognized as one of the most serious problems facing us at the conclusion of the war. In the Housing and Town Planning Bill now before Parliament the Government proposes that powers should be given to the Local Government Board to relieve schemes, approved by the Board, from the necessity of complying with existing local Acts of Parliament in regard to building, inasmuch as

the by-laws under many of these Acts make it impossible to build houses to economic advantage. At the same time, if housing schemes are to be embarked upon with rapidity and to meet the urgent need, it is essential that the schemes of local authorities should contain the elements of success. The houses to be built must be of the kind where the present existing evils can find no room. The Memorandum of the Local Government Board contains indications of the kind of scheme which should be embarked upon if the assistance of the Board is to be obtained. Elaborate arrangements have been made for money grants to local authorities and "public utility societies," while district offices have been established by the Board in charge of Commissioners who will be ready to assist local authorities with expert advice in regard to the entire housing problem. These Commissioners will advise authorities on the choice and layout of sites, the best types of houses to be erected, the methods for carrying out contracts and obtaining the materials. Authorities who follow the guidance of the Commissioners will obtain approval of their schemes and grants in aid of them. Many local authorities have already made a preliminary estimate of the number of houses immediately required in their districts, and some have notified the Local Government Board as to the number of houses they are prepared to build. It is certain that the issue of the Memorandum of the Local Government Board will stimulate other communities to take the matter in hand at once. The Memorandum contains full instruction for the planning of a scheme with regard to site, roads, fencing, planting and drainage, while in an interesting appendix plans of actual houses are given for general guidance, which are not intended to hamper initiative, or to prevent full expression being given to local customs and traditions, or the use of local building materials. The general requirements which the Board consider should be met are set out in full detail; they provide for living-rooms of the most convenient and economical kind, for good bath and scullery accommodations, and for larder and cold storage; while precise injunctions are laid down for the avoidance of needless exterior work, for the grouping of flues into a few chimney-stacks and for placing those parts of the house which will require plumbing and attention to drainage as near as possible together. In other words, if anything should go wrong the house will not have to be half pulled down, as now occurs in tenant house property.

The issue of this Memorandum ought to make for expediency and economy in view of the pressing urgency of the housing situation. The preparation of their schemes by the local authorities ought not to be postponed until the Housing and Town Planning Bill has become law. The schemes ought to be ready and as far as possible approved by the time the Act is on the statute books. Local authorities now have guidance in drawing up the schemes, and the medical officers of health of the various districts may be trusted to keep the officials charged with this splendid work "up to the scratch."



Under the Editorial Direction of Albert C. Geyser, M. D., New York.

THE PHYSIOLOGIC USE OF "NORMAL SALT SOLUTION."

Unless a therapeutic measure has for its object the restoration or at least the maintenance of normal physiologic functions, it is of questionable value.

Simply because our ancestor, the searchin, was largely made up of and lived in salt water is not really a good and logic reason for believing that salt in any quantity is still good for the human body.

Our organisms are no doubt habituated to a certain amount of sodium chloride, in fact, a normal physiologic amount is essential to our well being.

For a short time the system will even bear a rather large amount, but *unless promptly eliminated* such an excess will soon produce toxic manifestations.

Before the present highly complicated kidney existed, the only function allotted to its predecessor was the regulation of the inorganic composition of the blood or body fluids.

Later these rudimentary organs were called upon to eliminate the waste products of metabolism.

Today we have a kidney, an organ of complex character with duties to perform that daily taxes its physiologic capabilities more and more.

Our kidneys now regulate *blood concentration, proportioning the various ions, preserving the acid base equilibrium* and in addition to these primal functions the kidneys must now *dispose of large amounts of organic waste matter*—toxic substances of endogenous and exogenous origin.

While an excess of inorganic salts is detrimental, the toxic waste material of organic compounds taxes the kidney function to its limit.

Yet it is a fact that an organ or tissue created primarily for a certain purpose will always have a tendency to *revert* to the performance of that function when opportunity presents itself.

If, for any reason then, the inorganic balance in the blood is disturbed, that disturbance receives the more or less *exclusive* attention of the kidney, tho organic acids and toxines may in consequence accumulate in the blood stream.

We ought to appreciate the danger of flooding the organism with inorganic salts which demand prompt elimination.

This also explains the fact that an excess of sodium chloride may cause symptoms which vary in accordance with the particular toxines which happen to be retained.

The entire kidney function for the time being is taken up with the elimination of the excess of the sodium chloride.

As a rule, there is little danger of too much sodium chloride entering per os, altho some individuals do consume an amount of salt daily with their meals that borders closely on excess.

Such patients show a prompt amelioration of their toxic symptoms the moment physiologic rest is secured for the kidney by withdrawing the excessive amount of salt ingested.

It must not be assumed that the toxic manifestations were due primarily to the presence of excessive amounts of the salt, but rather to the fact that the kidney for the time being reverted to its fundamental function of regulating the inorganic composition of the body fluids and thereby neglected the more important function of ridding the body of organic waste material.

There is danger in an excess of sodium chloride finding its way into the system by the employment of what is known as a "normal salt solution."

Personally, I have some objection to that term. In the first place, altho it may compare in Sp. Gr. to the blood plasma, yet as far as the economy is concerned, it may not be normal when introduced into the circulation. Again it is not absolutely necessary that a solution which is to be introduced into the circulation must contain any salt at all.

An isotonic solution of glucose, in many instances, serves a much better purpose.

The "physiologic isotonic solution" would be a more appropriate term. Under this term the solution could contain any and all of the salts normally found in the blood plasma, or it might contain none of them,

being made up of glucose, yet it would be physiologic and isotonic.

Such solutions approach in similarity the normal blood serum and under suitable circumstances may perform the physiologic functions of the latter.

Such isotonic solutions are used for the following purposes:

1. For increasing the volume of the blood, as after severe hemorrhage.

2. For increasing the volume of the blood when the watery elements have been lost as in cholera, dysentery and gastro-enteritis accompanied by large watery movements.

3. To dilute and favor the removal of toxines as after anesthetics, gas poisoning, ptomaine poisoning, bichloride of mercury poisoning, even in certain infectious or toxic diseases.

4. For raising the blood pressure to stimulate the action of the kidneys and sudoriparous glands.

5. For counteracting the effect of shock.

6. For introducing necessary fluids into the system by any other way than per os, as after operations on the throat or stomach or when the patient cannot for any reason swallow, as during unconsciousness, spasm and lockjaw.

In all of these enumerated conditions this solution has a physiologic function to perform.

Neither a certain so-called "normal saline solution" nor any other stereotyped solution will answer in each one of these indications. Even tho in a given case a certain solution is indicated, that same solution, under similar circumstances, is contraindicated in another patient.

The patient's condition, the physiologic function desired and the solution required must be in harmony.

These solutions may be introduced into the system by the following routes:

1. Intravenously.

2. Hypodermically—hypodermoclysis.

3. Colonic flushings—proctoclysis—enteroclysis.

It may seem strange, but it is a fact that if a falsehood is repeated often enough, it will sound like the truth.

As soon as it was discovered that certain postoperative cases required and did well upon an artificial increase in the blood serum, every patient was ordered, as a

routine measure, to be given a "normal salt solution" per rectum.

The enteroclysis was given to raise the blood pressure. Sometimes it was needed, sometimes it was not needed, but for fear of missing one that might need it, every postoperative case received it.

The only reason that I can ascribe to the adding of salt to the solution is that some laboratory specimens *in vitro* thrived better in an isotonic solution than in ordinary water.

It may also have originated from the erroneous belief that plain water was an irritant to the mucous membrane and for that reason the salt was added.

There certainly does not exist any good or valid reason why salt should be added to a solution intended for proctoclysis.

The very fact that the solution is being introduced per rectum shows that it must have been intended only for the purpose of feeding a patient water, who could not take it per os.

As no one ever thinks of feeding a patient salt water per mouth, there is no reason why it should be administered per rectum.

It is certainly a fact that ordinary plain tap water will be absorbed in much less time than any salt solution.

Doctor Trout has demonstrated by a series of over two thousand cases that ordinary hydrant water is better than any salt solution. More water is absorbed, the post-operative thirst is more promptly relieved while the toxic effects of the salt are avoided.

Simple and logic as this may seem the average doctor still recommends "normal salt solution" per rectum.

The method of proctoclysis is only indicated when the blood pressure remains undesirably low after the loss of fluids from the body, or in cases where the patient has undergone an operation of the passages leading to the stomach, or an operation upon that organ itself.

In other words, this method is not indicated unless thirst is the leading symptom and the same fluid that is best calculated to relieve thirst is also indicated in proctoclysis, which is plain tap water at a temperature of about 100° F.

If a small amount, say 5% of whiskey has been added to this water there is reason

for believing that the absorption will be hastened.

Technic.—The patient should be lying down, a fountain syringe or similar container should be suspended three or four feet above.

To the end of a rubber hose is attached a stopcock and a piece of glass tubing to which a soft rubber rectal catheter is connected.

The water is turned on so as to expel the air in the tube, not that the entrance of air in the rectum is dangerous but the air in the tube is likely to interfere with the flow and so cause an unnecessary disturbance of the patient later on.

The water is allowed to flow from thirty to sixty drops per minute thru the glass tube. Now the rectal catheter is inserted with a gentle rotary motion, as otherwise the catheter is liable to double upon itself and instead of being high up, is really low down, presenting a very small surface of mucous membrane for the absorption of the fluid.

When the catheter is in position, it is attached to the still dripping end of the glass. A few turns of adhesive tape will fasten the catheter and hose in a suitable position so that the patient need not be disturbed for some time.

From two to four quarts or more of water may, with this method, be introduced into the circulation. In toxemias this method may render good service but the elimination of the water is of the utmost importance.

Hypodermoclysis is the next most important method. The solution is introduced beneath the skin into the areolar tissue. The advantage of this method over proctoclysis is the certainty of knowing that a certain amount of fluid has really entered the system.

The fluid so introduced is taken up by the general or systemic circulation in much shorter time, yet in not so short a time as to embarrass the circulatory system.

Hypodermoclysis is indicated when the tissues require the addition of water for its solvent properties; this is so in toxic states where it is desirable to dilute the toxic material, in postoperative cases where the pulse is soft and feeble, providing the feebleness is due to loss in volume, or vessel-tone is lost as a result of toxemia,

where the patient's condition will not allow the introduction directly into the circulatory system.

If it is our intention to reduce a toxemia, a hypotonic solution is indicated, because if we make use of an isotonic solution there is a probability that such a solution will not take up enough of the poison, while if we make use of distilled water there is danger of injuring the wandering cells of the blood and a solution of a quantity used for hypodermoclysis would be dangerous to life.

The pulse and the general responsive conditions of the patient should be our guide.

Above all else, the eliminative power of the patient plays the most important part, because this whole procedure is for the purpose of elimination principally.

All of the instruments used, as well as the field of operation, must be made and kept sterile; this can be easily accomplished because as a rule there is no hurry.

A fountain syringe or similar container is filled with a sterile solution, either isotonic or hypotonic. To the end of the rubber hose is attached a rather large calibre hypodermic needle or a small cannula.

The water is allowed to flow in order to expel the air, then the needle is introduced into the cellular tissues well beneath the surface of the skin. The small needle opening and the approximation of the tissues offer sufficient resistance to the flow of the current.

As soon as the tissues become boggy or water-laden, the needle must be withdrawn and reinserted into a new area. If this precaution is overlooked, the patient suffers unnecessary discomfort and pain.

If a hypotonic solution has been used, the patient must be supplied with additional heat to encourage free perspiration. It is assumed that the kidney function is normal.

The method of hypodermoclysis is gradually being displaced by the method of intravenous infusion.

Of all the methods of adding fluid to the body in an artificial manner this is certainly the most direct.

If there is physiologic response, it is almost immediate.

When we turn from enteroclysis to the more scientific intravenous infusion, we meet with new dangers, which certainly have not as yet received proper considera-

tion. The fact that water has been freshly sterilized or even distilled does not prove that it is innocuous. It may contain many harmful products of distillation or toxic substances set free from killed bacteria.

It is true that in the administration of salvarsan no untoward effects have been recorded as a direct result of the intravenous route.

The quantity of the one as compared with the quantity used in the other is an important factor. Again, when the intravenous method of adding volume to the blood is indicated, we are dealing with a patient who is exsanguinated or at least suffering from shock or collapse.

Under suitable circumstances the beneficial effects of directly increasing the bulk of the blood serum by an isotonic solution in certain surgical cases are not doubted.

There are two indications for the use of an artificial serum, one where the bulk of the blood has been suddenly diminished to a danger point. Such a sudden diminishing is always the result of hemorrhages.

For our purpose we must distinguish between two kinds of hemorrhages, those resulting from surgical intervention or trauma, such as accidents and those appearing *de novo* as secondary hemorrhages from the lungs, stomach, intestines, ruptured tubal gestation, etc.

The difference between these is the fact that in the one the hemorrhage is controllable while in the other it is not.

In a severe hemorrhage from the lungs it would almost seem good therapeutic procedure to resort to blood letting in order to reduce the blood pressure to the lowest, while it would be short of criminal to resort to an intravenous infusion of a salt solution.

In the first place the blood pressure would be increased and in the second place the sodium chloride would keep the blood in a fluid state and so prevent coagulation.

The second indication for intravenous infusion is said to be in cases of shock or collapse.

When water is used under such circumstances it is not our desire to materially increase the volume, but we do wish to add heat to the system. For this purpose one pint of hot water at a temperature of 115° F., which is made isotonic by the ad-

dition of glucose, has given satisfactory results.

The technic for intravenous infusion must be perfect in maintaining asepsis in the field of operation as well as being sure that the introduced fluid is free from all toxic substances.

When a large amount of water is to be introduced, as after a surgical hemorrhage, the temperature should be about 100° F. to 105° F. When a smaller amount is to be used, as in cases of shock, the temperature should be from 110° F. to 120° F. and this fluid must be introduced slowly and not exceed one quart in amount.

The solution must be at least isotonic, while no harm results even from a hypertonic solution, providing glucose is used instead of sodium chloride.

A rather large hypodermic needle with a blunt end is attached to the end of the hose from the container; after all the air has been expelled and the water still flowing, it is inserted into the vein of the arm.

In the adult patient this is usually not very difficult, but in children, or when the veins are much collapsed, some difficulty will be encountered.

Frequently a great loss of time occurs as the result of looking for a suitable entrance into a vein. In all such cases time is usually an important factor and it is good practice to abandon at once the intravenous method for the hypodermic one.

It is safer, usually more quickly performed, about as effective but perhaps less scientific.

A few practical case reports will show the dangers attending the routine administration of the "normal saline solution."

Case 1. To a patient with double pneumonia, in an extremely toxic condition but with apparently a good heart action and no evidence of edema of the lungs, an isotonic intravenous salt infusion was ordered. The interne who took the order was doing double duty and did not get around to this case for four or five hours. The patient then showed signs of approaching edema of the lung, with tracheal rales. The infusion, however, was given without consulting the visiting physician who gave the order and the patient died promptly.

This case teaches several things: In the first place the folly of routine work; second, the danger of delaying an order;

third, the fact that this case was not treated according to physiologic therapy.

There was no other indication except the toxemia for the use of additional fluid. In such cases it is the elimination and not the administration of the fluid that should receive first consideration.

Case 2. A patient with advanced cardiovascular fibrosis, with a systolic pressure of 220, was found by the physician whom he consulted to have albumen and casts. A flushing out of the kidneys was decided upon and three quarts of water and three quarts of milk were ordered to be taken in each twenty-four hours. In about one week the patient began to bleed from the nose, and this bleeding continued for twelve days off and on, necessitating repeated plugging of the anterior and posterior nares. In this case the profuse and continued hemorrhage from the nose delayed the fatal results.

Case 3. A case was recently reported by Brooks where one and one-half liters of salt solution in three doses per rectum were used, apparently without any particular indications for its use.

A short and simple appendectomy had been performed; the patient had practically lost no blood; the pulse was perfect. The giving of the normal saline solution was left to the nurse who, either thru ignorance or gross carelessness, made use of a stock solution of nearly saturated sodium chloride.

This patient received almost nine ounces of the pure salt with rapidly fatal results from acute sodium chloride poisoning.

Case 4. A woman, age twenty-eight, was operated upon by the Wertheim method for the removal of a carcinomatous uterus. After the operation normal saline solution was ordered to be administered by the Murphy method of proctoclysis. Again a nurse administered five quarts of the solution within the period of eight hours. The kidneys failed to act, while the patient's pulse rose to 148 per minute.

Pulse became irregular and weak and patient went into stupor. Under the influence of external stimulation and mustard to the precordia the alarming symptoms subsided, the pulse dropping in two hours to 118 per minute. In this case the solution was of the proper kind, yet if the kidneys failed to eliminate the added amount of chlorine, poisoning was sure to occur, especially when the larger amount of increase

in the circulating fluid embarrasses the cardiac action.

Case 5. Sippel reports the following: A patient suffering from eclamptic convulsions, which had kept up for thirty hours after delivery, was relieved following the decapsulation of one kidney.

Copious urination followed, coma completely subsided. Following this, three quarts of normal salt solution were given hypodermatically, with the result that a complete anuria and coma returned, which soon proved fatal.

In this case no solution of any kind was indicated, but if after the kidney function was restored, it seemed advisable to assist in the further elimination of the toxemia a glucose solution would have given better results.

In dextrose we have a substance which has been recognized since the days of Claude Bernard as in the highest degree non-toxic, diuretic, nutritious and easily assimilated.

If introduced slowly, either by enteroclysis or intravenous infusion, in isotonic or hypertonic solutions, very large amounts will be utilized by the organism without the occurrence of glycosuria, or with the loss thru glycosuria of only a negligible percentage of the sugar administered.

Case 6. McKelvy reports a case from the West Pennsylvania Hospital. Patient suffering from bronchial asthma, with moderate emphysema, but in a very emaciated and poor physical condition.

Enteroclysis was given for a long period, consisting of a 15% glucose solution. The urine very seldom showed a sugar reaction, but the patient gained in weight and a decided improvement was noted in his physical condition.

Recently a great deal of attention has been paid in Europe, particularly in France, to the use of hypertonic solutions of dextrose intravenously.

Enriquez reports the use of a 30% solution intravenously in more than fifty patients, giving from 250 to 300 c.c., repeated three and four times in twenty-four hours.

The essential feature in the technic is that the hypertonic dextrose solution enters the blood stream very slowly, one hour being occupied for the infusion of from 250 to 300 c.c.

Conclusions.—1. The administration of any artificial serum as routine post-

operative practice is questionable therapeutics.

2. Too much water may fatally embarrass the heart.

3. Too much salt may fatally embarrass the kidneys.

4. When fluids cannot be taken by mouth, thirst may be relieved by tap water or by isotonic dextrose solutions given by enteroclysis. The dextrose solution is preferable when there is danger of acidosis and in all cases of inanition.

5. When there is a distinct indication for an artificial addition to the amount of the circulating blood-serum this may best be accomplished by the use of dextrose solutions: isotonic (5.1%) by enteroclysis; isotonic, hypertonic (up to 30%), or hypotonic (2%) by intravenous infusion.

6. There are no contraindications for the use of dextrose, but often serious contraindications for the use of saline solutions.

7. In all urgent cases the intravenous method is preferable.

8. Greater care should be exercised to see that all water used intravenously is not only sterile but also non-toxic.

9. In medical practice artificial serums should be more frequently employed: (1) Isotonic or hypertonic after severe hemorrhage, exhaustive vomiting or diarrhea or in cases of extreme inanition; (2) hypertonic in toxemic cases including eclampsia and uremia; in cases of oliguria with threatened uremia; to combat acidosis, or if toxic states, as after anesthetics, gas, morphine, mercury poisoning, etc.

10. The old idea of "flushing out the kidneys" cannot be too severely condemned.

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Rational Organotherapy

The Treatment of Asthma.—Beusaude and Hallion (*Med. Press and Circular*, Dec. 4, 1918) claim that very satisfactory and immediate results can be obtained in the treatment of the attack of asthma by the subcutaneous injection of either adrenalin or of pituitary extract, or, still better, by a mixture of the two substances.

The solution with which the authors obtained the results contained per c.c. half a milligramme of hydrochloride of adrenalin and an amount of dealbuminized total extract of pituitary body corresponding to 0. gr. 25 centigrammes of the fresh gland. This was employed at the rate of one c.c. a day, but one of their patients, unknown

to them, made three injections in twelve hours without any untoward symptom.

The authors have employed the adrenalino-pituitary mixture in 56 cases of asthma, and also in a few cases of persistent spasmodic cough. The youngest patient was 8 and the oldest 60 years of age. They have given, in all, some 500 injections.

In almost every instance the treatment determined subsidence of the asthmatic attack. The effect usually made itself felt within from two to five minutes after the injection, and a single injection in most instances sufficed to cause the attack to subside. As a rule the relief is immediate and complete. One of their patients, employed at a neighbouring railway station, when he feels the attack coming on, runs around to the hospital, gets his injection, and is able to return to work in the course of a few minutes. In most of these cases not only does the attack cease, but complete quiescence takes place, so that when the attack is by night refreshing sleep follows.

This abrupt passage from the state of crisis to one of absolute well-being does not obtain in every instance, the effect sometimes merely amounting to relief, short of total subsidence. When patients have had to be given injections several days following, the results of the second and third injections have seemed more effectual than the first. In any event a patient who reacts to a given dose invariably remains sensitive to that dose without any tendency to tolerance, consequently we are not called upon to increase the dose in order to obtain the same effect. In one instance a patient has been employing the remedy for the last four years, and the effect has in no wise diminished.

Altho it is necessarily somewhat difficult to estimate the efficacy of a remedy in such a capricious disease as asthma, Beusaude and Hallion believe they are entitled to conclude from their experience that not only does it, in favorable cases, afford immediate relief, but it seems to lengthen the interval between subsequent attacks. This is also Borchardt's opinion, and his view is that this effect is due to the pituitary constituent.

Patients who have been obliged to have recourse to morphine to obtain relief are unanimous in preferring the adrenalino-pituitary injection. Comparing the effect of the morphine injection to that of this mix-

ture, one of them said his impression was that morphine abolished his individuality without acting on the attack, whereas our injection seemed to act on the attack without impinging upon his individuality.

As far as the authors' experience goes, these injections do not seem to expose the patient to any undesirable collateral consequences. In the great majority of instances the injection gives rise to no discomfort whatever. Occasionally, after the first injection, the patient complains of slight tremors, the sensation of electric shocks, of weakness in the legs, restlessness or palpitation lasting at most a few minutes. The symptoms, such as they are, are in all probability due to the adrenalin, and are, if anything, attenuated by the pituitary extract.

Speaking generally, it may be undesirable to employ this treatment in cases in which, for any reason, hypertensor drugs are contraindicated. At the same time this is a theoretical objection which is open to the criticism that, in the dose recommended, administered hypodermically, the authors have never remarked any tendency to heightening of the blood pressure.

Ductless Gland Therapy.—In observing, from the clinical point of view, the action of the thyroid gland, it is important to remember that neither its complete chemistry nor its total functions have yet been satisfactorily elucidated. Masterman-Wood (*Practitioner*, May, 1919) states that recently, however, certain American investigators have produced synthetically a crystalline substance under the name of "thyroxin," the administration of which, it is stated, not only relieves all the symptoms of myxedema, but if given in excessive doses produces those signs which are associated with hyper-thyroidism.

While it is evident that this aspect of the subject demands further investigation and proof, it is, nevertheless, axiomatic to state that a normally functioning thyroid is an essential for the complete physical and mental development of the infant and for the maintenance of health of the adult. That this gland also is intimately connected with the metabolism of the iodine and calcium in the body seems now to be beyond dispute. Ac-

cording to Jolin the average amount of iodine in the normal human thyroid is 8.5 m. g., and this increases to 15.6 m. g., under iodine medication. It has further been established that, altho the eviscerated gland is capable of absorbing iodine, its living cellular tissue is essential for the due elaboration of its iodine-containing hormone.

The claim that has been made, that the normal thyroid in virtue of its iodine-content supplies an antiseptic to the blood stream, is based mainly upon the laboratory findings of a greatly reduced amount of this substance in the gland after acute illness. One of its important properties is its ability to store up iodine; but it is open to doubt whether it can retain for transmission via the blood-stream to the tissues of the body at any given period sufficient iodine, in the form of a "vital antiseptic," to restore the balance from a septic to an aseptic state. There is no doubt, however, that in all toxemias the thyroid plays a very active and essential part, and that after severe illness in many cases it often ceases to function adequately. Clinically, many instances of this may be observed in children who, previous to the onset of some acute infection, have been normal in every respect, but who subsequently exhibit in varying degrees signs of failure of development and other stigmata of sub-thyroidism. Likewise, adults under similar conditions show evidences which point conclusively to a breaking-down of the thyroid's efficiency, which may be temporary or the incipient stage of chronic benign myxedema. The truth of this can soon be verified by the exhibition of thyroid extract which, if used with care and perseverance in such cases, not only aids defervescence but greatly hastens convalescence. In the writer's opinion, the precise part which the thyroid plays in the defense system of the body must be viewed more from the aspect of its specific ability to store up and elaborate iodine, and its intimate hormonal and chalonic relationship with other members of the endocrine glands.

Skin Diseases.—In all skin diseases, the first duty of the physician, according to the *Medical Press*, is to treat the man that has got the disease, and then the disease that has got the man.



THE ADMINISTRATION OF ARSPHENAMINE.

To the Editor,
AMERICAN MEDICINE.

Sir:—It appears that there is a lamentable want of care on the part of many physicians who administer arsphenamine as to the concentration of the drug used and the time required for administration.

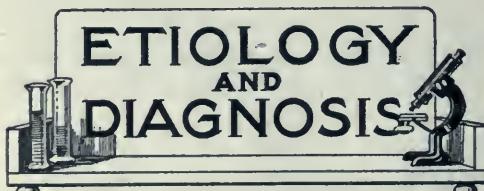
The Hygienic Laboratory receives many complaints in regard to untoward results from the administration of arsphenamine made by various American producers. When careful investigation is made it is almost invariably found that the drug has been used in a solution that is too concentrated, and that it has been administered too rapidly. We have reports of a dose of 0.4 gm. being given in a volume of as little as 25 c. c. and injected within 30 seconds. Such practice is abuse, not use, of a powerful therapeutic agent.

If, in addition to the usual precautions as to the use of perfect ampules and neutralization, physicians would give the drug in concentration of not more than 0.1 gm. to 30 c. c. of fluid and allow a minimum of two minutes for the intravenous injection of each 0.1 gm. of the drug (in 30 c. c. of solution), the number of reactions would be very materially reduced. This would necessitate from 90 c. c. to 180 c. c. of the solution for the doses usually given and would require from six to twelve minutes for the injection.

Any physician who fails to observe these precautions should be considered as directly responsible for serious results that follow the improper use of the drug.

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Washington, D. C.



Some Observations on Astigmatism.—In order to eliminate uncertainty as to what is meant by astigmatism with the rule, against the rule, and oblique, Green and Hardy (*Amer. Jour. of*

Ophthalmology, Jan., 1919) propose the following definitions:

"Astigmatism with the rule, or direct astigmatism, shall include all cases with meridian of greatest curvature at any point on the arc from 46 to 134°.

"Astigmatism against the rule, or inverse astigmatism, shall include all cases with meridian of greatest curvature at any point on the arc from 0 to 44° and from 136 to 180°.

"Oblique astigmatism shall include all cases of astigmatism with meridian of greatest curvature exactly at 135 and 45°."

It is stated that inverse astigmatism is productive of unusually annoying symptoms. Reference is made to a recent study by the same authors, in which, in 1,024 eyes with regular astigmatism, 283, or 27.7%, were inverse. This is a larger percentage than is generally surmised.

A photograph illustrates one reason for the greater degree of asthenopia in eyes with indirect astigmatism, e. g., the greater interference with the legibility of type.

Cycloplegic measurement is advocated in presbyopes who give conflicting answers when tested without "drops."

One case reported illustrates that high unilateral regular astigmatism may be due to a birth injury.

An appropriate cylinder will often greatly improve vision and enhance the comfort of a patient whose cornea is deformed by antecedent injury or disease.

An eye with irregular astigmatism due to incipient cataract does not often tolerate a cylinder, as the lenticular astigmatism is constantly changing with the progress of the opacification.

Diagnosis of Smallpox.—Curtis points out in his article in *Medical Progress* (June, 1918) that in the diagnosis of mild smallpox, there are three cardinal points. In the order of their diagnostic value they are: (1) The initial fever or mode of onset; (2) the distribution of the skin lesions; (3) the morphology of the lesions. The mistake is made of putting the last point first in importance and perhaps relying on it entirely.

The mode of onset of smallpox is peculiar to it and not like that of any other eruptive disease; its value is enhanced by the fact that to some degree it is manifest in even mild cases. The disease begins with a moderate fever or sense of malaise like that of an ordinary cold. Headache and backache, which are commonly present, increase gradually and continue for the next two days. It is more than likely in a mild case that the sense of illness will be greater during these first three days than at any subsequent period of the sickness. At the end of the third day, or as soon after as the eruption begins to appear, the sense of illness will quite abruptly subside. A little reflection will show a physician that no other eruptive disease has such initial phenomena as these. It is very simple to draw out the subjective

sensations from the patient and very often will volunteer his history without questions being asked. In every case the mode of onset should be ascertained.

Another feature of smallpox, peculiar to it and equally trustworthy for diagnosis, is the site of the eruption. It will always appear first and be most abundant on the face and hands. If there are only a few lesions they will be found in these locations. This is in contrast to chickenpox where the lesions show preference for the chest which is usually free in smallpox. The face is the site of eruption by preference in other simpler affections such as acne, but the back of the hands will not be broken out; in multiform erythema, the face and back of the hands may both be affected along with febrile symptoms, but the lesions will be macular.

As to the eruption itself, the type lesion of smallpox is a papule, hard, red and firm to the touch. It develops into a vesico-papule or later a pustula-papule, and never loses its hard firm base. All eruption will appear within two days and all in a given region of the body almost simultaneously. All adjacent lesions will be of the same type. Aside from these points trust lightly to the lesion for diagnosis. In mild forms of smallpox the eruption sometimes aborts even before the vesicle forms and may never become pustular, but whatever the lesion, it will retain its papular quality and over a prolonged period.

No other eruptive disease has at onset a fever, or possibly malaise only, which lasts for about three days and then subsides as the eruption appears; no other eruptive disease has a papular eruption which comes first on the uncovered skin—the face and hands; no other has a papulo-vesicular eruption which develops in its entirety within 24 or 48 hours, so that all adjacent lesions are of the same age and state of development.

occurring in the left scapular region. He has made a careful study of 50 cases in which these conditions were observed. The scapular pain is usually referred to a spot just below or internal to the lower angle of the left scapula, tho it is sometimes felt along the vertebral border of the lower half of the scapula. It is apparently always accompanied by submammary pain, which is more generally recognized as of cardiac origin. The scapular pain is usually a later manifestation, tho in a few patients it appeared to originate at the same time as the submammary. The hyperalgesia was less frequently present than the pain, and its extent was variable, as shown in the record of 10 cases given by Dr. Parkinson. The conditions in which left submammary and scapular pain were observed included valvular and myocardial disease, arteriosclerosis and renal disease with cardiac embarrassment, especially when associated with high blood pressure; also "functional" heart disease and conditions of general ill health with inefficient action of the heart. As might be expected, Dr. Parkinson finds the explanation of these symptoms in the well-recognized principle of referred pain in visceral disease, so ably elucidated by Dr. Henry Head and Sir James Mackenzie. He finds that the sixth thoracic segment alone or in combination with the fifth supplies the submammary and scapular regions to which the pain is usually referred. The hyperalgesia corresponds to the same segments, tho it may extend to a larger area. He regards the development of hyperesthesia in cases of chronic heart disease or disorder, especially when it persists or recurs, as indicating a new and more obstinate stage. In his opinion the hyperesthesia induces and supplements the pain since it may be started or provoked by various movements disturbing the hyperesthetic areas. Dr. Parkinson's note illustrates well the manner in which careful record of symptoms may throw light upon disturbed function in disease.

Left Scapular Pain and Hyperalgesia in Heart Disease.—The significance of symptoms in the diagnosis of disease and in the estimation of its degree is receiving exact study in many departments of medicine, states an editorial writer in *The Lancet* (Apr. 5, 1919). In pulmonary tuberculosis it is practically impossible to express an opinion as to the nature and stage of the disease without careful correlation of the symptoms with the physical signs observed. In heart disease the symptoms afford a valuable measure of the degree of the derangement of function caused by the lesion indicated by the physical signs and of the necessity for treatment. That various cardiac conditions are associated with some degree of precordial pain and tenderness has long been familiar, but the extent, character and radiations of these pains have perhaps not received the attention they deserve except in the case of angina pectoris. There appears in this same issue of *The Lancet* an interesting and suggestive note by Dr. John Parkinson upon a little-recognized form of cardiac pain and tenderness, namely, that oc-

Diagnosis of Cerebrospinal Meningitis.—This is the most important type of meningitis in the young. Perry in the *Southern Practitioner* (Aug., 1918) says that the diagnosis is made on the following symptoms and lumbar puncture. The onset is usually abrupt, violent headache and vomiting being the first symptoms. Soon the temperature rises to 104-105 degrees, and prostration is marked. The pulse is rapid, and the respiration Cheyne-Stokes in type. By the third or fourth day after symptoms have developed there is marked stiffness of the neck with retraction of the head. The thighs become flexed on the abdomen, and the legs are flexed on the thighs. This causes the patient to assume the "gun-hammer" position. If left undisturbed in this position the patient seems comfortable, but cries out when moved. The legs cannot be extended on the thighs and we get what is known as Kernig's sign. Photophobia is a constant symptom. Ocular paralysis does not occur frequently. The discs, however,

may become choked and optic atrophy result. The middle ear occasionally becomes involved, the pus showing the meningococcus. Central deafness often results.

Punctate hemorrhagic skin lesions resembling "flea bites" are described in this disease. In two cases Perry has seen these lesions. Hyperesthesia is usually very marked. The knee-jerks are exaggerated, and Brudzinski's sign is present in most cases. Tache cérébrale and McEwen's sign are also present in this type of meningitis. The urine usually shows albumen. The blood averages a total count of 30,000 with 90 per cent. polymorphonuclears. The spinal fluid may be only cloudy or almost pure pus.

Complications and Sequelae.—Bronchopneumonia, acute otitis media, and central deafness, choked discs followed by optic atrophy and blindness. Various forms of paralysis, and the development of chronic basilar meningitis. In this latter condition the patient is in the "gun-hammer" position with a spastic paralysis. The head is hydrocephalic in type and there is usually blindness.

The spinal fluid in this type of meningitis is always cloudy, and on microscopic examination is found to consist of many cells, 30,000-40,000 per c. m., and to be mostly of the polymorphonuclear variety. Globulin is increased, sugar decreased or absent. Smears stained by Gram's method show negative, intracellular diplococci. The organism grows best on Loeffler's blood serum or glycerine-agar. In smear preparations made from the freshly drawn fluid the organisms may be hard to find, and patient searching may be necessary before they are discovered. In a purulent spinal fluid one should not give up until the character of the organism has been demonstrated. In all cases where one suspects meningitis a lumbar puncture should be done. It is a simple and, under proper precautions, a harmless operation, and it makes the diagnosis certain.

Prognosis.—In this type of meningitis, since the introduction of the serum treatment, the mortality has been reduced from 70 or 75 per cent. to 25 per cent.

Prophylaxis.—Cases of cerebrospinal meningitis should be kept isolated until the nose and throat do not show any meningococci on culture. Alkaline sprays and argyrol are useful in ridding the mucous membrane of this germ.

Appendicitis in Children.—Appendicitis in children is not infrequently associated with other infectious diseases: Influenza, measles, acute rheumatism, enterocolitis, typhoid and tonsillitis. Bower (*N. Y. Med. Jour.*, Sept. 21, 1918) states that it is the opinion of many that the excess of lymphoid tissue together with a thinning of the submucous coat accounts for the frequency of associated appendicular inflammation in these cases. 2. Abdominal injury predisposes to appendiceal inflammation in the young adult, 2.5 per cent. of cases giving such a history. 3. Fecal concretions are usually

larger and are more frequently found in early life. 4. Intestinal parasites are uncommon but are more frequently associated with appendicitis in juveniles. 5. Foreign bodies are more frequently found in appendices in children than in adults. We have seen lemon and grape seeds, toothbrush bristles, toothpicks, and, more recently, a common pin. In this instance the patient, two and a half years of age, entered the hospital with a history of lower abdominal pain, nausea, vomiting, and frequent urination, of four days' duration. At operation we found a localized abscess with a rusty pin well down in the pelvis. The tip of the appendix was markedly hypertrophied, the pin undoubtedly having lodged in this portion of the organ for some time prior to its passage into the peritoneal cavity.

The direct causative factors are the bacillus coli, staphylococcus, streptococcus, bacillus pyocyanus, and the tubercle bacillus. This is the order of frequency with which the above mentioned germs attack the appendix. It must be remembered, however, that tuberculosis of the appendix in adults is invariably secondary to a pulmonary lesion, while in young adults it usually follows or accompanies a general abdominal tuberculosis.

Clinical Aspects of Hematuria.—Hirsch (*Therap. Gazette*, November, 1918), in an instructive paper, recapitulates his observations as follows: 1. A complete detailed history and a careful physical examination should be an invariable rule in every case of hematuria. 2. A positive diagnosis can be made in 99 per cent. of all cases, by the judicious use of the cystoscope, ureteral catheter, urethroscope, X-ray and laboratory. 3. The color or density of blood in the urine, or the presence and character of clots, are in themselves not sufficient criteria on which to base a diagnosis. 4. Too much reliance must not be placed on the clinical significance of initial or terminal hematuria, as indicating the origin of the bleeding. 5. Repeated cystoscopic, urethroscopic, X-ray and laboratory studies may be necessary before giving a definite opinion. 6. Many so-called essential, idiopathic, or symptomless hematurias are cases of bleeding arising from a renal varix, angioma of the papilla, uretral papilloma, etc., conditions which are impossible of clinical recognition. 7. The presence of excessive urate, phosphate or oxalate crystals in the urine may produce hematuria, hence careful microscopic study should be made. Tubercle bacilli casts, parasites or their larvæ, and hooks of the echinococcus should be sought for in all hematurias of suspicious origin. 8. If blood is of suspected vesical origin, cystoscopy should be done during the intervals, when there is little or no hemorrhage. The origin of hemorrhage coming from the upper urinary tract is best determined by seeing the blood as it issues from the ureteral orifice. Ureteral catheterization is rarely necessary in these cases, and should only be resorted to either for functional study or the collection of the separate urines

from each kidney. Due allowance should be made for blood-tinged urine coming from the catheter, which might be due to instrumentation.



Intracranial Treatment of Paresis.—Cotton and Stevenson report in the *Journal of Nervous and Mental Diseases*, April, 1918, that one of the difficulties constantly met in the treatment of this trouble is to determine the best method, for it largely depends upon the type of case that is being treated.

The writers do not believe that the intravenous administration of salvarsan alone is sufficient to effect a remission, even if the spinal fluid is drained, as advocated by some, tho it is absolutely necessary. The cases that have had the combined treatment, both intravenous and intraspinal or intracranial, certainly do much better than those who have had no intravenous injections. One advantage of the intracranial method is that one can give a much larger dose of salvarsan, than by the intraspinal method, for in the latter, because of the sensitiveness of the spinal cord and the danger of producing serious damage, only a very small dose of salvarsan can be given, and only at two week intervals. On the other hand, with the intracranial method, a very much larger dose can be given and often once a week, especially if the subdural route is used.

A general anesthetic is not given, but the scalp cocainized with a 4 per cent. solution of cocaine. An incision is made over the bregma, either on the right or left side of the head and about a finger's breadth from the median line. A semicircular flap is then made and the periosteum is separated from the bone. For making the trephine opening into the skull an Albee electric drill with a Martel attachment is used which prevents any injury to the dura. After the dura is exposed a small incision is made and care taken not to sever any dural vessel, and then a modified Cushing brain cannula is introduced thru the dura and then thru the brain cortex, and when the ventricle is reached the plunger is withdrawn and the fluid allowed to flow out. During this stage of the operation the head of the table is lowered to facilitate the flow of the fluid. After sufficient fluid has escaped the serum is then introduced thru the cannula into the cortex, from a luer syringe and then the cannula is withdrawn, and the scalp flap is sutured. The patient is able to get up from the table unassisted and walk out of the room. He is told to lie down for a little while if he feels any effects from his treatment, but usually he has no after-effects. This opera-

tion is simple and rarely takes more than nine minutes, from the opening of the flap to the closing of the flap and the end of the operation.

Hoarseness.—Levbarg in *New York Medical Journal*, April 20, 1918, says that the most important problem confronting the laryngologist is hoarseness, especially that in singers, speakers and those who depend for a livelihood solely upon the use of their voice. It is important before examining the patient to take a careful history of the case. It is essential to know the habits of the individual, his customary diet, etc.

Do not direct all the attention exclusively to the vocal cords, but search carefully the surrounding tissues. Any pathologic condition interfering with the action of the vocal cords will cause hoarseness, but other things will produce the same effect. Marked hypertrophy of the lingual tonsil will cause a constant irritation, setting up severe congestion of the mucous membrane around the laryngeal region. Caseous tonsils have the same effect. Enlarged and inflamed adenoids and chronic nasopharyngitis have been proved to cause hoarseness. Great meat eaters will always have a severe congestion of the mucous membrane of the nose and throat, probably due to the increased proteins in their blood.

The most important problem is the hoarseness which comes on without apparent cause and without history of exposure on the part of the singer. It will frequently disappear almost as suddenly as it came. The patient fears to sing a long aria; he dreads that his voice may break during the course of his delivery of it. On examination invariably you will find in these patients a small nodule on one or both cords. This condition is known as chorditis nodosa. Chorditis nodosa accompanies chronic laryngitis in those who use their voices in a faulty manner.

The treatment depends upon the cause. If the method is faulty have the singer change instructors; if due to diet prescribe a different one; if due to any pathologic condition treat it accordingly. Diet, rest, relaxation, plenty of air, exercise, and regular habits will gradually eradicate the hoarseness which is the dread of the singer and the public speaker.

Hay Fever and Asthma.—Reporting the results of his investigations, with a view of selecting the most effective treatment, Scheppegrill states in *New York Medical Journal* (June 1, 1918): The treatment of the cases of this series, during the active stage of the hay fever, was limited to the hypodermic injection of pollen extracts and bacterial vaccines. The extract of the pollen was selected to which the patient was found to be sensitive and to which he was exposed as indicated by the pollinometric records. The pollen responsible for most of the early hay fever cases (April to July) was found to be from the grasses (*Graminea*),

which also include the cultivated varieties such as rye, wheat, oats and corn. The fall hay fever (August, September, October) was found to be principally due (ninety-five per cent.) to the ragweeds (*Ambrosiaceae*). The large size of the corn pollen (eighty microns) limits its potential area to a short distance from the plant.

In the spring hay fever cases the extract of the grass pollen was used, and in the fall cases that of the ragweeds. In cases in which the patient suffered from both forms of hay fever (spring and fall) the grass pollen was injected at first, and the ragweed extract during the fall season. Combined extracts should not be used in these cases, either for prophylactic or curative purposes. The grass pollens predominate in the early part of the season and the ragweed in the latter, and the pollen extracts should therefore be adapted to each season. The patient, moreover, is rarely equally sensitive to both pollens, so that a combined extract, in which equal parts of each pollen is used, is not indicated.

If the patient applies for treatment during a severe period, the pollen extracts are usually ineffective and a vaccine should be used, these being injected at intervals of one or two days until the severity of the attack subsides. The pollen extract is then used, the vaccine injections being resumed if a severe paroxysm develops. The reason for using the vaccine during the severe paroxysms is that at this time the patient is suffering not only from the effects of the pollen but also from the great increase in the pathogenic microorganisms resulting from the lowered resistance of the respiratory membranes. The use of vaccine therapy at this stage is therefore logical, and has given satisfactory results. In a few cases (5 per cent. of this series) the treatment of the successful ones was limited to vaccine therapy only. The question of autogenous and stock vaccines has been carefully considered in this series. The autogenous vaccines are preferable provided they can be obtained of the proper standard and purity. When there is any doubt regarding this, the stock vaccines of unquestioned reliability should be given the preference.

The Inefficient Use of Vaccines.—Objections to the use of vaccines in the treatment of acute infections like pneumonia, broncho-pneumonia, influenza, mastoiditis, sinusitis, colds, etc., says a writer in the *Bacterial Therapist* (Mar., 1919), arise only from those who have had no real experience with them in the treatment of such cases, or from those who have used them inefficiently and improperly; used them differently than those who obtain excellent results; and curiously enough most of these objections come from men high in authority on other therapeutic measures. Therapeutic agents are efficient only when properly applied, hence the greatest efficiency of a remedy can only be determined by extensive clinical experience.

The objections to the use of bacterial vac-

cines in the treatment of extensive acute infections are purely theoretical. The contentions are, that the toxic symptoms which prevail in these acute infections show that the patient is suffering from an overload of bacteria and their products; that to give vaccines under such conditions is irrational because we thereby simply add more bacterial toxins where it is clearly evident that the patient is suffering from an excessive amount of toxins; and that by giving vaccines under such conditions we are liable to thrust the patient into the so-called "negative phase" and make matters worse.

Many of these objectors have heard of the good results that are being obtained with vaccines in extensive acute infections, but as a rule their theoretical prejudices are so strong that they are unwilling to give them a trial and if perchance they do try them, nine times out of ten they allow their preconceived notions to prevail; allow the thought, that by giving vaccines we make the patient more toxic, to dominate, with the result that the patient receives entirely too small doses at much too long intervals. Such trials would naturally result in failure, and yet the contention from these sources will carry more weight with many otherwise well informed physicians, than statements from general practitioners who have used vaccines with success, because they use them in such a way that experience teaches them to be most efficient. Most of the available literature on vaccine therapy has been written by laboratory research workers who hold that vaccines are contraindicated in extensive acute infections and that if vaccines are employed in such cases, very small doses are recommended.

We find, however, that absolutely contrary conditions prevail. We find that in subacute and chronic infections, to obtain the best results, treatment must be started with a small dose, usually 0.2 mil. of a standardized suspension, and the dose should then be gradually increased to 1 mil. or more and inoculations made at 4 to 7 day intervals. If in chronic infections treatment is started with a large dose unpleasant reactions are almost sure to follow and if the injections are repeated at short intervals the infection will not subside as rapidly as if small doses are employed at long intervals. In extensive acute infections, large doses—1 mil. of a standard suspension given at the earliest possible moment, repeated at daily intervals—give decidedly the best results, and in extremely bad cases the vaccine may be given twice a day to advantage. No appreciable reactions follow the use of 1 mil. doses of vaccine, when given during a high temperature and other indications of a toxic infection, nor does any material infiltration develop at the site of injection. The rule should be that in the most severe infections, the largest dose should be given at the shortest interval and the less severe cases should receive the smaller dose at longer intervals. Unless this general rule is followed, no satisfactory results will be obtained from the use of bacterial vaccines.

As long as objectors to vaccine therapy remain obstinate, as long as they are unwilling

to give vaccines an efficient trial, we must expect the unfortunate victims of pneumonia and similar infections to pay the penalty, but surely this apathy cannot continue much longer. If any dangerous or unpleasant symptoms would follow the use of vaccines, there would be some excuse for hesitation, but all available information shows that the treatment is absolutely harmless. The reason for the necessity of large doses of vaccines at short intervals may be explained on the ground that in extensive acute infections we have a large number of organisms multiplying rapidly, to contend with and to destroy these organisms there is required a large amount of antibody. If the antibody that was produced as the result of the first injection is all consumed before all the infecting organisms are destroyed, the infection may "light up" again, but by repeating the inoculations at short intervals, the antibody producing process will be continued until the infection is eliminated.

Thousands of doctors are employing this method in the treatment of pneumonia and other acute infections and the results speak for themselves. No one, to our knowledge, who has ever given this treatment a fair and unbiased trial, has discontinued it. The only way you can satisfy yourself as to the efficacy of bacterial vaccines, is to give them a trial and use them in the same way as others do who are obtaining results.

Treatment of Iritis.—If the treatment of iritis could be confined to one drug, that drug would undoubtedly be atropia. Atropine, Andrew (*Long Island Med. Jour.*, Jan., 1919) claims meets most of the local requirements. It dilates the pupil narrowing the diameter of the iris, squeezing the engorged vessels and reducing the inflammation. It paralyzes the accommodation thus putting the eye at rest, and by drawing the pupillary margin away from the anterior surface of the lens prevents the formation of adhesions or breaks up those which are forming. It is of no value in occluded pupils. Sometimes a granule of powdered atropine placed in the conjunctival sac accomplishes the purpose better than the solution. Cocaine added to the atropine will occasionally increase the effect. Atropia must be instilled sufficiently often to keep the pupil dilated, and the tension of the eye should be constantly watched during its use. Dionin used with the atropine relieves pain in some instances, and by its lymphagogue action assists in removing the products of inflammation.

An old and honorable way to deplete the engorged vessels is by blood letting at the temple, either by the use of leeches, or by the use of an artificial leech. In this connection it may be well to add that in the absence of leeches or the usual artificial leech, a good substitute may be improvised by scarifying the temple and applying an ordinary breast pump. It is sometimes a matter of surprise to see how quickly atropine will produce its maximum effect after a blood letting.

The systematic treatment of iritis is the treatment of its cause. In syphilis our sheet anchors

are salvarsan, mercury and after the inflammation has begun to subside the iodides.

When associated with myositis and arthritis the salicylates and aspirin are indicated, even tho the gonococcus is the causative factor. If a focus of infection can be found in the teeth, the tonsils, the nasal sinuses, the prostate or any other place it must be gotten rid of at once. In many cases, in addition to removing the focus, the condition will be helped by the administration of an autogenous vaccine. The gonorrhreal form is also frequently helped by a gonorrhreal vaccine.

Tuberculosis is tuberculosis whether found in the lungs or the iris, and the general rules for its management are similar. The administration of tuberculin is sometimes of considerable benefit. Some surgeons advocate the use of a three per cent. guaiacol ointment as an inunction, or the subconjunctival injection of a one or two per cent. solution of guaiacol.

To be successful in the treatment of iritis the surgeon must ever bear in mind its pathology, and he must be prepared to discover the etiology of each case, by using all those aids to modern medicine, the X-ray, and particularly the pathologic laboratory for his bacteriologic and serologic tests and for the preparation of his vaccines. With all the aid which modern medicine offers us we find it necessary only too often in the treatment of this most insidious disease, to summon to our aid our last reserves of common and diagnostic sense and therapeutic acumen.

Diet in Cirrhosis of Liver.—Terol (*Revistas Cursos*, Apr., 1918) advises a milk diet in the early stages of cirrhosis of liver. This leaves the liver comparatively in repose while promoting diuresis. He gives nothing but water the first day except a purge. An adult should take 3 liters of milk during the day, sipping a small amount every one or two hours. The milk should never be taken more than this at a time, as this would distend the stomach, with retention and fermentation with results injurious for the liver cells, and digestive disturbances which impel the abandoning of the milk diet. The milk must never be taken raw, but goat's or ass' milk may be substituted for cow's milk. Fermented milk or condensed milk, etc., should not be used except when the patient wearis of the sterilized milk. This milk diet should be kept up for a month. After this the ordinary diet can be very slowly and gradually resumed, keeping to small meals of easily digestible foods. He advises four meals, the two latest at 5 and 9 p. m., but they should never be abundant. Weak mineral waters are useful, avoiding all carbonated beverages as their gas distends the stomach. Mastication should be especially thoro, and the patient should give both body and mind a rest after eating. General and tonic hygiene should be enforced. In cirrhosis with hypertrophy there is excessive functioning on the part of the liver, and the diet should aim to reduce production of toxins, being restricted to starchy foods and dry vegetables with little sugar or substances liable to

putrefy. In cirrhosis with atrophy, meat should be positively prohibited to ward off production of toxins, and salt should be restricted to 6 gm. a day to guard against ascites and edema.

victims as they are at present of the poorest and cheapest form of contract medical service supplied by the insurance companies.

NEWS NOTES AND ANNOUNCEMENTS

Malaria in the United States.—The United States Public Health Service estimates that over 7,000,000 people in the United States are infected with malaria. Estimates prepared by the service indicate that in the South the ravages of typhoid fever, tuberculosis, hookworm, and pellagra all together are not as serious as from malaria.

Workmen's Compensation Laws and the Insurance Companies.—At a special meeting held April 2, 1919, at 51 E. 100th Street of the executive committee of the Physicians' Protective Association of New York, Dr. Edward L. Spitzer presiding, the following resolutions were introduced by Dr. John P. Davin and were passed unanimously:

Whereas, The Governor of the State in a special message to the legislature has demanded immediate revision of the Workman's Compensation Law to prevent direct settlement between injured employees and the insurance carriers, suggesting that the legislators read the report of Jeremiah F. Connor, showing that many injured persons have been defrauded by the insurance companies, in some instances being bilked of \$2,000.00 or more.

And Whereas, Governor Smith further says that with these facts before the legislature, it should forthwith amend the law and abolish direct settlements or present some good reason for not doing so which thinking men and women will tolerate.

Resolved, That we respectfully call the attention of the Governor and the legislature to an exactly similar condition relating to the payment of physicians' fees by the insurance companies, which has resulted in the denial of the best medical service to the injured workmen and working women of the State. This is owing to the impotency of the medical provisions of the Workman's Compensation Law either to provide a proper fee for medical service or to compel the payment of the fee awarded by the commission against the insurance companies.

Resolved, That the Governor include in his proposed revision of the Workman's Compensation Law to remedy this form of injustice to the medical profession, to the end that the working men of this State will receive the services of the best men in the medical practice as they did before the passage of the Workman's Compensation Law, and not be the

Dr. Abraham Jacobi's Eighty-ninth Birthday was celebrated a few days ago. It is one of the privileges of May time to offer felicitations to Dr. Jacobi on this day each year, and we join the *Medical Record* in looking forward with pleasurable anticipation to the celebration, eleven years hence, of his first centennial.

Spain Honors Mme. Curie.—King Alfonso has signed a decree awarding the Great Cross of the Civilian Order of Alfonso XIII to Mme. Sklodowska Curie, the distinguished French scientist, chief professor in the faculty of sciences of the University of Paris. Mme. Curie was the discoverer of polonium and co-discoverer with her husband of radium.

General Gorgas Heads Yellow Fever Commission.—Major-General William C. Gorgas, recently retired for age from the office of Surgeon-General of the United States Army, has resumed his position as chief of the Rockefeller Commission on Yellow Fever and will soon sail for Central America to supervise the studies that are being carried on there by the Rockefeller Commission.

The National Society for the Study and Correction of Speech Defects.—The National Society for the Study and Correction of Speech Disorder will have its summer meeting in Milwaukee, on July 4, as one of the affiliated Societies of the National Educational Association. Members of the Society and invited guests of prominence in the field of speech correction, will address the Association. Anyone interested to receive an advanced program may do so by addressing the Secretary, Miss Marguerite Franklin, 110 Bay State Rd., Boston, Mass.

Don't Quit!

"You're sick of the game?" Well, now, that's a shame;

You're young and you're brave and you're bright.

"You've had a raw deal?" I know, but don't squeal;

Buck up, do your damnedest and fight. It's the plugging away that will win you the day,

So don't be a piker, old pard.

Just draw on your grit; it's so easy to quit, It's the keeping-your-chin-up that's hard.

—Anon.

It Can Be Done!

"Somebody said that it couldn't be done,
But he, with a chuckle, replied
That 'maybe it couldn't,' but he would be one
Who wouldn't say so till he'd tried.
So he buckled right in with the trace of a grin
On his face. If he worried he hid it.
He started to sing as he tackled the thing
That couldn't be done, and he did it.

"Somebody scoffed, 'Oh, you'll never do that,
At least no one ever has done it';
But he took off his coat and he took off his hat,
And the first think he knew he'd begun it,
With the lift of his chin and a bit of a grin.
If any doubt rose he forbade it;
He started to sing as he tackled the thing
That couldn't be done, and he did it.

"There are thousands to tell you it couldn't be
done,
There are thousands to prophesy failure;
There are thousands to point out to you, one by
one,
The dangers that wait to assail you.
But just buckle in with a bit of a grin,
Then take off your coat and go to it.
Just start in to sing as you tackle the thing
That cannot be done, and you'll do it."
—“Evelyn,” in the N. Y. Tribune.

God Give Us Men!

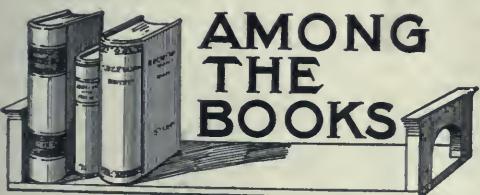
God give us men! A time like this demands
Strong minds, great hearts, true faith and
ready hands;
Men whom the love of office cannot kill;
Men whom the spoils of office cannot buy;
Men who possess opinions and a will;
Men who have known, men who will not lie;
Men who stand before a demagogue
And damn his treacherous flatteries without
winking,
Tall men, sun-crowned, who live above the fog,
In public duty and in private thinking;
For while the rabble with their thumb-worn
creeds,
Their large professions and their little deeds,
Mingle in selfish strife, lo! Freedom weeps,
Wrong rules the land, and waiting justice
sleeps.
—John S. Holland.

top no matter how keen the competition." In the same way it may be said that there is always room for a really good book, no matter how many may have been written on the same subject.

The Treatment of War Wounds by Dr. W. W. Keen (W. B. Saunders Company, Philadelphia, 1918) is assuredly a work of this kind. It is a compact and concise presentation of some of the most important phases of war surgery. In fact it is just such a work as might be expected from such an acknowledged master of surgery as Dr. Keen is known to be. This is a second edition, the first having been issued only a little over a year or so ago. However, this latest edition is more than a simple revision, as the rapid progress made in the treatment of war wounds has rendered it necessary to practically rewrite the entire book. In this edition is included the work on acriflavine, proflavine and "brilliant green" mercurophen, as well as the latest technic on the paraffin treatment of burns as devised and perfected by the French naval surgeon de Sandfort. Dr. Keen is a writer whose forceful and interesting personality is always reflected in his writings. As a consequence, this contribution to the subject, in addition to its practical scientific value, has a quality and merit which those who know Dr. Keen and his work will be quick to recognize and appreciate.

Electrotherapeutics.—Probably no branch of therapeutics has made greater strides than electricity, or has more surely within recent years been lifted out of the slough of empiricism. While empiricism cannot be entirely eliminated from the employment of any line of treatment, it is perhaps more aggressively evident in the domain of electrotherapeutics than in any other field of medicine. Therefore it is encouraging to note that the science of medical electricity is at last duly and properly coming into its own. A good deal of the empiricism, which has prejudiced the medical profession against the use of electricity for therapeutic purposes, has been brought about by reason of the way in which electricity has been shrouded in mysticism. Obviously, the more that simple methods of electrical treatment are employed the more quickly will the whole subject be deprived of the mystic element and the more comprehensive and effective will become its application to diseased conditions.

Electricity in Medicine by George W. Jacoby, M. D., and J. Ralph Jacoby, M. D. (P. Blakiston's Son & Co., Philadelphia) serves admirably to show what can be accomplished by electrotherapy when thoroly understood. The book is well written and contains all the necessary up-to-date information required to insure the successful use of electricity in medicine. The illustrations are numerous and aid greatly in the interpretation and elucidation of the text. We do not hesitate to say that this is one of the best and most satisfactory works on the subject that has ever been published. No man who



The Treatment of War Wounds.—It is a well known adage that "there is always room at the

uses electricity in any way in his practice should fail to have it for frequent reference.

Surgical Nursing.—That nurses are absolutely essential to the proper care of all patients, but especially those forced to undergo surgical treatment has received ample testimony, if such testimony were needed, during the war. It may seem heresy to say so in a medical journal but nurses are almost, if not quite, as necessary in the management of surgical injuries as physicians and surgeons. When nurses are thus referred to it must be understood that thoroly skilled and competent nurses are meant. In order to be skilled a nurse must we well trained, and she cannot be well trained unless she is well versed in the elementary principles of medicine and surgery. Therefore, the *Text-Book of Surgery for Student and Graduate Nurses* by Archibald Leete McDonald, M. D. (J. B. Lippincott Company, Philadelphia) is welcome. This manual deals with anatomy, physiology and bacteriology in so far as these directly relate to surgical conditions in addition to the care and management of surgical patients. It is a book calculated to be of unlimited value to nurses who are called on to assist at surgical operations, as well as to carry out the surgeon's instructions in regard to after care.

X-Ray Therapy.—Roentgenotherapy has made great headway during recent years, despite the fact that there has been a dearth of reliable works on the subject from which the beginner could obtain the necessary information. With the view of filling this want, Albert Franklin Tyler, B. Sc., M. D., in *Roentgenotherapy* (C. V. Mosby Co., St. Louis) has written a book the terms of which are so simple that a veritable novice can readily grasp the essential principles. He has also furnished a brief description of the apparatus necessary in roentgenotherapy; this is so well and profusely illustrated that the reader may, with minimum effort, become familiarized with the requisite mechanical and electrical details of the work. The book is practical, and undoubtedly will prove extremely helpful, not alone in clearing away obscure points, but in rendering roentgenotherapy easily intelligible to those who seek a working knowledge of its effective application.

Tropical Medicine.—It never has been, and is not now, generally realized that many tropical diseases are indigenous to this country. In fact, a considerable portion of the United States lies in a sub-tropical region, in which unfortunately flourish all such tropical affections as malaria, black water fever, amebic dysentery, bacillary dysentery, liver abscess, pellagra and hookworm disease. Consequently these maladies possess for many American medical prac-

titioners much more than an academic interest, and not a few physicians have found it necessary to study them in all their bearings. It is not enough, moreover, to approach these diseases from the laboratory viewpoint, but the clinical phenomena of each and all of them should be made the subject of careful investigation. Correct diagnosis obviously is essential to proper treatment and the procuring of a correct diagnosis is immensely aided by clinical study of the sufferer. With a full appreciation of these facts, E. R. Stitt, A. B., Ph. G., M. D., LL. D., has written *The Diagnosis and Treatment of Tropical Diseases* (P. Blakiston's Son & Co., Philadelphia) in which tropical diseases are considered from the clinical standpoint. As this is a third edition it is unnecessary to deal with the book in detail, and it will suffice to point out that as the second edition was published less than a year ago, at which time a very thoroly revision was made, there has seemed to be no need for material changes in the present edition. The subject of trench fever has been brought up-to-date and a few other somewhat immaterial alterations have been made. The illustrations are numerous and effective, and the book can be highly endorsed as a commendable contribution to the subject.

Beverages.—The matter of beverages is an important one, and altho it seems probable that alcohol beverages will not bulk large or, at any rate, not so large, in this country in the future, that fact affords no valid reason why alcoholic beverages should not be considered. Unfortunately, all beverages, and alcoholic beverages are not exempt from this implication, are subject to adulteration. In *Beverages and Their Adulteration* by Harvey W. Wiley, M. D. (P. Blakiston's Son & Co., Philadelphia) the subject is dealt with by an acknowledged authority. Indeed on this side of the Atlantic there is perhaps no higher authority on the question of diet than Dr. Wiley. The book before us is intended as a companion to the volume on *Food and Its Adulteration*, which the same author brought out not long ago, and which met with so favorable a reception at the hands of the medical profession and the public alike. This book discusses the subject in detail, and a feature of that part of it in which alcohol is considered, is that medicines, so-called, which consist chiefly of alcohol, and which are held by the Bureau of Internal Revenue as non-medicinal but alcoholic, are fully described. Those drinks which are popularly termed soft are given an exhaustive description, and water of all kinds, potable, mineral of the artificial and natural varieties, are all considered at considerable length. With each subject dealt with, the common adulterations and misbrandings which may be practiced therewith, are gone into. The book is timely and valuable, and by its publication Dr. Wiley has given us a fitting companion to his volume on *Food and Its Adulterations*.

American Medicine

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Greetings.—The response of the medical profession to the demands of war was in thoro accord with its highest traditions. With war regarded as a type of pestilence, it was natural to find those whose duty it is to wrestle with the forces of disease and destruction prepared to assume their duties and obligations in staying the horrors of modern warfare, at home, in camp, in trench, or in the shell-pocked "No Man's Land." It were needless redundancy to dwell upon the loyalty, courage and devotion of the physicians, who, with their wonted spirit of service, were willing to sacrifice every personal consideration in order to participate in the cause of their country.

Fortunately, the number of deaths from wound, accident, disease or direct hits was not high. The actual ratio of mortality to medical mobilization was no higher than that general to all mobilized forces. The good fortune was not merely accorded to the individuals, but passed to the entire American Expeditionary Force, which thus was enabled to secure a higher degree of medical efficiency and a more continuous service from the front line trench to the base hospital.

Practically one quarter of the actually practicing physicians of the United States were wearing the colors. In addition, many thousands were called upon for service in connection with the selective service draft,

various problems in industry, in hospital organization, and in readjusting the agencies for health administration, so severely handicapped by reason of the enlistment of the regular staff. The medical colleges rallied to the cause, and with wise judgment were permitted to continue their important function of developing a new class of graduates to take the place of those so sadly needed in various sections of the country, or to replace those who had "gone West."

The entire history of the American medical service will not be written for many years to come. Chapters have been developed which transcend in value any that have ever been written. The European War brought out the finest qualities in all men, and in the medical fraternity intensified the ever-present virtues which underlie medical service. In the crucible of suffering was developed a more worthy profession. In the face of hardship, suffering, and impending calamity, ideals crystallized, and bases of greater accomplishment were founded.

Whether as a medical officer, a general or special surgeon, a sanitarian or an administrator; whether on service at a hospital this side of the Atlantic, or on duty in France, England, or Germany, there was evidenced the same conscientious spirit, an identical determination to work by night and by day in the interests of mankind.

Duty was their only call and they strained to listen for it.

Taken as a whole, the accomplishments of the Medical Corps of the United States Army and Navy merit highest appreciation. They had a most difficult task to perform for which training had been inadequate. Despite the difficulties and limitations in practical experience, which may be freely acknowledged without shame, the profession rose to the demands of the occasion and, under capable leadership, guidance and direction, overcame obstacles which, during years of peace, might have given innumerable fears and discouragements to the same group of workers. Weighing all the complaints, the criticisms, the individual objections to this and to that, waiving aside certain injustices that may have occurred, throwing aside unfavorable comments that may have arisen from jealousy or unfulfilled hopes, the work of the medical officers of the United States Medical Corps deserves cordial recognition and highest approval.

While actually an instrument of an army bent upon destroying human life, medicine maintained its position as a constructive force for conserving human life. All the traditions of the profession, from the ages that have passed, shone forth splendidly, and emerged from the welter of blood, unstained.

To all our professional brethren, who have gone thru the great consecration of war, AMERICAN MEDICINE gives greetings. It sees no wound stripes; it sees no service stripes; it sees no gold or silver chevrons; it sees only the spirit of American manhood, the patriotic self-sacrificing attributes that have ever redounded to the greatness and glory of American medicine.

War Casualties.—According to the recently published summary of the casualties of the United States Army and Marine Corps, 33,374 soldiers were killed in action, 13,571 died from wounds, 23,399 died of disease, and 4,950 died from accidents and other causes. The total number of wounded was 211,302, of whom more than 85 per cent. returned to duty. The casualties in the Marine Corps totaled 6,061, and the complete number of deaths in both branches was only 76,027, with the total number of casualties in both branches of 294,234.

Under ordinary circumstances, a casualty list of this proportion would be regarded as heavy. Fortunately, the war ended before all American troops were exposed to the front line hazards. The official data have not indicated the ratio of the casualties to the number of men actually engaged in direct action. Regardless of ratios, however, the cost in life, wounds, permanent disability and chronic invalidism, large as it may seem to those to whom the loss is personal, constitutes but a negligible part of the war casualties of the most frightful war of carnage that has ever cursed or blessed humankind.

It is well, at this time, when we are accustomed to think in terms of millions and billions, to contemplate the war losses of the Allies and of the Central Powers, with a view to visualizing, if possible, the effects that have been wrought upon this generation, and with a view to contemplating the enormity of the wastage from which succeeding generations, too, must suffer. The figures do not take account of the deaths from starvation, from pestilence, from the trials, the massacres, the brutalities suffered by the non-combatant population. They convey no idea of the decreased birth rate, the increased infant mortality rate,

the insanities, the wanton atrocities visited upon infants, children, old men and old women, the girls and young women. The Allies had a total mobilization of 39,676,-864, of whom 4,869,478 were killed; 11,-175,715 were wounded, and 4,956,233 were taken prisoners or reported missing. The four Central Powers had mobilized 19,500,-000, of whom 2,912,000 were killed; 7,605,-542 were wounded, and 2,124,347 were reported among the missing or were prisoners. Compared with these vast numbers, how fortunately small are the losses of the United States!

The real ratios are more startlingly appreciated when it is recognized that the number of killed of the United States forces was approximately only one and one-half per cent. of the mobilized forces, as compared with the 18½ per cent. of France; the 9.2 per cent. of the British Empire, the 8.4 per cent. for Italy, the 45.5 per cent. for Serbia, and the 26.7 per cent. for Roumania. The wounded of the United States was approximately five per cent. of the mobilized forces, compared with 35.7 per cent. of France; 41.3 per cent. of Russia; 27.2 per cent. of the British Empire; 17.2 per cent. of Italy.

According to the *Vocational Summary*, March, 1919, the total number of wounded for the United States and its Allies is in excess of 11,000,000, and for the Central Powers of 7,600,000. Of this total number of 18,600,000 wounded men, it is estimated that thirty per cent. or nearly six million are "permanent human wrecks." These appalling figures are fraught with a significance that it is difficult to comprehend. The problems of reorganizing the world's humanity into a semblance of normal activity are stupendous. They demand an unshaken faith and

confidence in the essential principles of brotherliness and cooperation. They call for unwavering fidelity to the ideals for which the war was waged by those who proclaimed themselves the champions of civilization, the defenders of mankind. The weight of America's arms was the final factor in ending the struggle, and to that extent, the United States emerges as a peacemaker. Fortunately, the rich resources of this country were not impaired, and its brains and its brawn were not ruthlessly sacrificed or crippled by engines of destruction either at home or abroad.

America's real opportunity lies before it, as a most powerful agent for world reconstruction, as a rehabilitator of the handicapped, an encourager of the disheartened, a shield to the weakened, a purveyor of food, clothing and shelter to the peoples of all lands, a physician to heal and soothe the frightful wounds and diseases war has visited upon the nations of the world.

International Red Cross Activities.—

Among significant efforts at reorganizing the instrumentalities for advancing human welfare must be noted the recent meeting of the Interallied League of Red Cross Societies held at Cannes. Here were gathered together such authoritative counsellors as Drs. Roux, Laveran, Calmette, Widal and Rist, representing France; Drs. Bastianelli, Lafava, Golgi and Castellani, from Italy; Sir Arthur Newsholme, Sir Ronald Ross, Dr. K. Menzies and Dr. Truby King, representatives of England. The United States delegation included Drs. William H. Welch, Dr. L. Emmett Holt, Dr. Samuel M. Hamill, Dr. Livingston Farrand, Dr. Hermann M. Briggs, Dr. William P. Lucas, Dr. Fritz Talbot and Dr. William F. Snow.

In addition, there were delegates from the Federal Children's Bureau, and from the nursing organizations in charge of the American Red Cross Forces overseas, and the head of the Army Nursing Corps.

The program of the conference, according to *The Survey*, May 31, 1919, "centered about the realization of article XXV of the Covenant of the League of Nations, under which members of the League agree to encourage and promote the establishment and cooperation of duly authorized voluntary national Red Cross Organizations, having for their purpose the improvement of health, the prevention of disease and the mitigation of suffering." Among suggestions considered was the formation of an International Bureau of Health, with a director and an advisory council operating principally thru national Red Cross societies, where such existed, but always in full cooperation with govermental or other bureaus and agencies interested in the problems of health and relief. The function of the Red Cross will be principally to lead the way in health experimentation and in demonstration of methods of attaining health and promoting education in sanitation.

A movement of this character constitutes a distinct advance in methods of ameliorating not merely conditions which have grown out of war, but in attacking the numerous health problems which existed previous to the years of strife. The accomplishment of international cooperation in the development of standards of health and standards of methods is of no small significance. It forms an essential part of the general plan for promoting the security of civilization. An appreciation and understanding of the principles and practices requisite for the maintenance and protection of health

and welfare are basic in determining future progress, free from the ravages of preventable diseases and disabilities, whose potential mortality or morbidity threatens to cause unnecessary hardship and suffering in the homes of all peoples of all lands.

It becomes of the utmost importance that the forces of expert knowledge and opinion should unite for cooperative effort in promoting and fostering a wider understanding of the health needs of communities, in stimulating and aiding existent agencies in the fuller performance of their special activities. It is essential that the mass of scientific knowledge available be disseminated for the purpose of building up a body of public opinion which shall refuse any longer to countenance low standards of health administration. Participation of varied governments in the mutual task of developing an international force possesses high moral values, particularly for creating a deeper sentiment regarding human worth and for winning the confidence of all peoples in giving support to the promulgation of the measures necessary for the improvement of human living, to the end that needless sacrifices of life and health may be decreased.

The high standing which the Red Cross organizations have achieved affords them a remarkable opportunity for seizing the leadership in this direction and for forcing the medical and allied professions to greater activity along public health lines. One of the greatest difficulties of modern administration is the securing of a fuller measure of cooperation on the part of existent agencies and institutions, whose programs overlap and whose specific problems all form part of the large plan for promoting human welfare. As education to no small extent is dependent upon schemes originating in

universities which filtered down to and thru the elementary schools, so it is possible to have the high principles worked out in international cooperation, thru national agencies, state and municipal institutions until all citizens may be reached by the contents of the program and recognize its true and insistent worth. In this connection, however, the multiple medical organizations of the country should be pronouncedly active in stirring up their respective communities to the importance of public health principles and practices. In all probability, a large measure of dependence will be placed upon medical activity, organized in the interests of communal health.

The Red Cross movement will gain immeasurably if the enthusiasm, knowledge and the powers of medical organizations can be linked with the other voluntary organizations of a lay membership, whose specific interests lie in the field of public health medicine and public health nursing. International effort can only become effective thru the cooperation of national institutions; and national capabilities are closely interwoven with the successful cooperation of all types of organizations seeking to serve the citizenry. A League of Nations can be no stronger than a League of Workers, seeking to perfect the development of humanitarian impulses and practices.

Industrial Health.—While war called forth various new plans of organization for the creation of a highly efficient army and navy, other programs concerning the welfare of the industrial line of support were equally under advisement. The most encouraging feature of America's participation lay in the fact that it had the oppor-

tunity of profiting by the experience of its allies.

From an industrial standpoint, the most noteworthy assistance was received from the splendid investigations of the British Health of Munition Workers' Committee. With the title of "Industrial Health and Efficiency," the United States Department of Labor, thru its Bureau of Labor Statistics, *Bulletin* Number 249, has issued the final report of the British Health of Munition Workers' Committee. The scope of their investigations, the thoroness with which specific industrial health problems were studied, the frankness and soundness of their views, made their report a most notable contribution to the literature of industrial health as affected by war conditions.

At various places in the report there are what would seem to be digressions pointing out the intimate relations between industrial health and some of the larger social industrial problems. As an evidence of their careful thought, we may quote the following from their final report: "*First* and foremost, there is the fundamental question of shorter hours of labor from a political and economic point of view (as well as from a health point of view); the committee is convinced that this question lies near the root of the whole labor problem. *Secondly*, there is the far-reaching issue of the social and economic conditions of women's labor (over and above the issues of health with which the present report deals), a matter of vital importance to the future of the British race, for the health conditions of women are even more inseparable from the social condition than in the case of men. *Thirdly*, there is the question of the solidarity of industrial society, the interdependence between employer and

workman, which is closely related to the whole issue of the status, health and physical equipment of the worker. And *fourthly*, there is the title of the worker to an effective voice in regard to the conditions under which he works. If industry be indeed a national service, the object of those engaged in it is the good of the community as a whole, and the worker should have a fair and legitimate share in the responsibility of the transaction. The committee is convinced that these four problems must be faced and solved if ever the State is to lay sound foundations for the health and physical efficiency of the industrial worker."

It must be recalled that this committee was organized "To consider and advise on questions of industrial fatigue, hours of labor and other matters affecting the personal health and physical efficiency of workers in munition factories and workshops." It is of significance to find the constant insistence that industrial life be guided in the future (1) "by the application of physiologic science to the details of its management; (2) by a proper and practical regard for the health and well being of our work people in the form both of humanizing industry, and improving the environment." These statements were not *a priori* conclusions, but were based upon a thoro, systematic and well balanced review and study of conditions involved in the consideration of such problems as hours of labor, Sunday labor and night work, food and canteens, industrial diseases, sanitary accommodations, welfare supervision, within and without the factory and the relation of fatigue and ill health to industrial efficiency.

As the vital work of the Medical Department of the Army was the care and

protection of the men who were to bear the brunt of military work and battle shock, so the home forces were held responsible in a larger measure for the conservation of the physical potentials of the industrial workers. The principle involved is one and the same. National efficiency in social and economic fields is to be achieved only by a larger degree of interest in the preservation of the general welfare of all those who labor with brain or brawn. It is particularly pertinent, with the Peace Treaty rising above the horizon, to realize the necessity of carrying into the days of peace all the information or machinery which was found helpful in waging war. To promote prosperity, to advance human contentment, to aid in the development of a more vigorous race, it is imperative that more emphasis be placed upon the needs of those who constitute the overwhelming majority of our population. The right of workers to conditions of health becomes intensified as public opinion is awakened to the means of achieving health, and the costliness and extravagance of neglecting to make provisions for an environment conducive to health and safety.

The British Health of Munition Workers' Committee has shed much light upon definite problems, and while some of its conclusions have already been adopted in American industry, there is still ample room for accepting, with such modifications as American conditions require, those elements which unquestionably promote both health and efficiency. In the highest sense, the word "health" should possess a connotation of efficiency, and efficiency should reflect an underlying meaning of soundness.

The next few years will involve much discussion of problems relating to labor, and it is of paramount importance that the

medical profession fully understand the numerous problems ordinarily termed social, economic or political, insofar as they are related to sanitation, hygiene, health and preventive medicine. In one sense, the industrial worker is seeking to secure adequate health standards for himself and his family, tho his agitation may take the form of demanding shorter hours, higher pay and a more sanitary environment.

Reporting Communicable Diseases.—

The reporting of diseases by physicians is frequently regarded as a useless task or unnecessary burden. In fact, a few health officers are still uninterested in the development of their official statistics, relative to the facts imparted by notification of the presence of specific communicable diseases. An editorial writer in the *American Journal of Public Health*, June, 1919, points out the following five reasons for urging the reporting of diseases, despite the fact that there may be difficulties in limiting or controlling them in the light of our present knowledge. The advantages urged are: "1. To prevent the spread of the disease by means of quarantine or isolation. This is the most important motive and applies in the case of most of the reportable diseases. 2. To secure statistical data as a basis of study. This applies especially to diseases which are not yet fully understood, such as influenza. 3. To induce the patient to take proper treatment. This applies in the case of pneumonia and syphilis. 4. To urge proper after-care. With poliomyelitis, for example, it is very important that proper muscle training should be pursued in order to restore the use of muscles. The guarding against after-effects of measles

has already been referred to. 5. To guard against confusion owing to mistaken diagnosis. For example, many health officers think that every case of chicken-pox should be investigated in order to differentiate it from smallpox. Similarly, German measles and scarlet fever are frequently confused."

No sane person would advocate the accumulation of reports and statistics for the mere satisfaction of possessing them. Reports and figures are to be regarded as bases of judgment, points of departure for investigation and the essential items in building up well-founded systems of health administration, or for indicating lines of investigation needed in the advance of public health. It is impossible to conduct a modern health department today without making every effort to possess an understanding of local health conditions. Mere questionings on the part of the administrative officer are inadequate to secure a satisfactory conception of disease states that may be existent generally or in particular localities or communities. The determination of the existence of an epidemic is practically dependent upon a knowledge of the normal frequency of disease appearance with which may be contrasted the number of cases of each particular disease developed at any definite time or period in the community. Obviously, information of this character can be ascertained only by the cooperation and support of the physicians who are in daily contact with the sick. The facts which may be supplied by notification thru postal cards are of transcendent meaning to the epidemiologist and health officials, while they are regarded by most persons as merely constituting a reason for the employment of a statistician capable of evolving weird and startling vital statistics.

Statistics, as such, to many, are regarded

as dry, uninteresting and dead. It requires the spark of human intelligence and appreciation to set them aflame with life and to convert them from passive figures to active and dynamic facts, capable of aiding and saving a multitude.

Under a properly organized and careful system of notification communities may possess a sensitive index of public health at any time. The freedom from, or prevalence of, particular diseases is readily ascertained, and due and proper action may be taken in accordance therewith. Fortunately, the larger the city the more detailed is the system of notification. While state laws list numerous diseases as reportable, there is a well grounded belief that the success in carrying out state provisions has not been as great as might be desired or expected. Like many other laws, the results depend upon the cooperation of citizens. Fundamentally, notification acts require the warm support of the medical profession as well as of the community.

There may be a certain element of unfairness in placing full responsibility upon physicians, particularly while there is no provision that covers the notification of disease by practitioners of various cults, who deny their existence, or whose training fails to give the education requisite for accurate diagnosis. Despite this shortcoming of the law, the responsibility for making known the presence of communicable diseases rests upon physicians and should be accepted by them as an evidence of confidence in their capabilities and of belief in their interest in the public weal. The collation of facts and figures relative to communicable diseases is essential in public health work and should have the whole-hearted assistance of medical men.

Health Care for Employees.—The intricacies of industrial organization have been added to by the ever increasing interest in the welfare work for employees. While it may be assumed by some that the purpose is distinctly philanthropic, it must not be forgotten that welfare work pays a legitimate return to industry in ways other than the protection of the welfare of the workers. Motives, however, do not concern us. The point of interest lies in the fact that there is a growing and healthful attitude of solicitude for the welfare of human beings on the part of employers throughout the country.

As pointed out in the *Bulletin of the United States Labor Statistics*, No. 250, methods of caring for the health of employees vary with the needs of different industries and the individual ideas of employers. "These methods include work along the lines of preventive and curative medicine and surgery, the safeguarding of the health of all the employees thru the physical examination upon entrance, the relief from the strain of especially monotonous and fatiguing operations thru the granting of rest periods or change of occupation, and the granting of vacations and sick leave which give employees the opportunity to recuperate from long periods of work or of illness."

Under the stimulus of personal interest and state laws, as well as the urge of specific organizations, many types of industries have successfully developed various plans of medical, hospital and surgical treatment for their employees. The details of organization include a large number of items, varying from simple first-aid cabinets to elaborate and up-to-date emergency hospitals, with dispensary plants, social service workers, convalescent homes and similar

modern agencies. A total of 375 establishments reporting to the Government, employing over a million men and women, accounted for 265 hospitals or emergency rooms, while 110 offer only first-aid equipment, 171 report their own physician, 181 their own nurse and 131 first-aid attendants.

The significance of these figures is enhanced by an appreciation of the need for preventive and curative work of this character. To illustrate: 261 establishments reporting the number of cases treated, employing in all 770,000 men and women, stated the average number of individuals treated for a month to be 196,772. In other words, from statistics presented, 24 per cent. of the male employees undergo treatment each month, and 27 per cent. of the female employees.

Without inquiring into the nature of the hazards of the various industries, or other reasons accounting for the need for emergent or other treatment, practically 25 per cent. of the employees of these large establishments covering fundamental industries actually receive treatment thru first-aid or hospital care.

The next few years undoubtedly will reveal a rapid development of industrial hygiene, decreasing the hazards of industry, but there will, nevertheless, grow up a larger measure of carefully systematized agencies in industry to meet the medical and surgical needs growing out of occupation. The employment of doctors, nurses, welfare workers, already under way, will be stimulated by reason of the demands of employees, the protective interest of employers, and the recognition by the public of the necessity for industry to carry out its responsibilities to the group of the community constituting the industrial workers.

The decrease in immigration, with a greater dependence upon a mere stationary population for future workers, increases the need for conserving the industrial population along lines in harmony with the higher standards of health efficiency, not merely the efficiency that arises from good health, but the efficiency needed to secure and maintain it.

The rational basis of medical and surgical work in connection with industry is to be found in an understanding of the fact that each worker constitutes an asset, not only to industry, but to the nation; and no industry should be permitted to avoid its responsibility in protecting the welfare of national assets. The emphasis in industry is being placed upon men rather than machinery, as the item of greatest consequence and significance.

It is patent that in the future there will be an increasing number of opportunities for medical men to engage in a form of practice which will have the backing of corporations and intelligent business men, who are alive to the important part that health pays in production. Machines are more readily secured and repaired than human beings. Industrial protection of workers is essential, not merely because it pays, but because it is fundamentally sound.

Creed of the Disabled.—Once more to be useful—to see in the eyes of my friends replaced with commendation—to work, produce, provide, and to feel that I have a place in the world—seeking no favors and given none—a man among men in spite of this physical handicap.—*Carry On.*

“Strengthened by the practical test of war, and with an abiding faith in the Almighty, let us be steadfast in upholding the integrity of our traditions as a guide to future generations at home and a beacon to all who are oppressed.”—*General Pershing.*



A Post-War Opportunity.—The doctor's calling, more than any other profession, is preeminently a calling of service. It is the one profession in which the reward is only in the exceptional case at all commensurate with the work done. One may safely say that hardly one student in a hundred chooses a medical career for the profit that may be in it. In that respect he differs conspicuously from the lawyer, or the engineer, or the business expert. To make the choice of medicine as a profession requires a generous measure of idealism which ignores profit, and every student who matriculates in a medical school bears the stamp of an idealist who has deliberately chosen a vocation the chief emolument of which is the gratification that comes from humane service to one's fellowmen. Evidence of this, if one requires evidence for so patent a fact, is the unique consideration that a lawyer will abandon his profession for another if he finds it is unprofitable; the engineer will seek some other work if he does not achieve the return he had counted on; but the doctor continues, never wavering from his course, even when he finds that he will have to content himself with the barest necessities for the remainder of his career. And it is only the ideal which he has brought with him into his work that permits him to survive financial disappointments. Granting this, one must grant that the war has brought the doctor an opportunity such has not been offered to him before—an opportunity which will increase his capacity for service and at the same time perhaps add to his material reward.

The whole world is in a state of flux, socially, morally, industrially. It is in the making again. It is being reborn. Out of the débris of the war, a new structure is rising. But it is chiefly among the large masses, in the industrial centers, that the situation is most tense and delicate. In the large cities of Europe strikes and even rebellion are prevalent, and in the industrial

sections of this country there are indications of a mood of unrest that is extremely disquieting. The workers of the world, having given their all for the establishment of a new order, aroused to a consciousness of their importance and power, are intent upon making sure that this new order will be established. Ignoring the Bolshevik and Anarchist element, which represent only a small minority in this country, the demands of the masses, in view of the sacrifices they have made, cannot be set aside with vague promises, cannot be hushed by the enactment of suppressive laws which only serve to stir impatience and violence. The demands of labor must be met generously, and they will be; and when they are, a new era will set in, an era of change and advance and understanding. But how, it may be asked, does this affect the doctors of the country? In what manner does this constitute an opportunity for them?

The Doctor's Equipment for Leadership.

—The present unrest among the masses of the world is due to the fact that they have lost faith in their leaders and everywhere there is a disposition to seek new ones. They feel that their representatives have not understood them, in some instances have misled them, and they have grown cautious about putting their future trust in men who have exhibited so inadequate an understanding of and sympathy with their aims. The problem is, then, who is to be their spokesmen, to whom will they entrust the leadership which is so necessary because of their unwieldy numbers? It is impossible to predict so early, but one can assert, without fear of contradiction, that there is one class of men in whom the masses have a faith of long standing, a faith that has not been impaired by the experiences of the war. That class is the medical profession. The war has served to bring the doctor in closer intimacy with the individual and thru him with the family. From the earliest times, the family doctor has enjoyed the privilege of serving at once as healer, friend, confidant, adviser and confessor. He has always been in the closest rapport with the individuals whose health he guarded, and this rapport has been intensified by his experiences in the war. The returning soldiers have nothing but praise

for the work of the Army Medical Corps. They may have questioned the judgment of their military leaders, they may have doubted the wisdom of their diplomats, they may have lost faith in their government representatives, but they never held the doctors in anything but the highest esteem. The doctors who return to their practice, even those who remained behind and served at home, will find that the ties between them and their patients have been intensified, the faith that has always been reposed in them has been strengthened. These intensified ties and this strengthened faith impose an obligation upon the doctor which is an opportunity, for it is these things that constitute the elements of successful leadership.

Such leadership will not carry the doctor far out of his chosen field, for the changes that are about to take place in the industrial world are intimately wrapped up with the interests of the modern, conscientious physician. As an instance, one may take the vital problem of industrial disablement, a problem which is sure to command great attention during the period of reconstruction which we face. Not only is the doctor interested in this problem, but he is better qualified than any other member of society to act as leader and adviser in bringing about legislation to meet the havoc of industrial accidents and industrial disease. The army reconstruction hospitals have proved that no man need be lost to the community thru wounds or injuries which once placed him among the human discards, and it is not likely that the lesson learned in these splendid hospitals will be forgotten. Indeed, there is a movement afoot to preserve these hospitals, with their equipment of material and experts, and to use them for the reclamation of workers injured at their tasks. Wherever possible, the war cripple was restored; and wherever possible, the peace cripple is to be restored to a productive and honorable rôle in the community life. In this work the doctors are destined to play a vital part. Furthermore, the experience that the army doctors acquired in caring for the health of the soldiers, in spreading the gospel of hygiene and sanitation, will prove of inestimable value in conducting a campaign, spoken of in authoritative quarters lately, to educate the masses of the whole country in sanitation and the principles of health. It has

been suggested that a force of doctors, equivalent to the Medical Corps in the army, be organized to undertake responsibility for the health of the population throughout the country. Whatever the course finally pursued, it is evident that here again the doctor's leadership will be called upon. With the coming of prohibition and the danger of evils which invariably attend the change to a dry régime, the physician's responsibility will be increased. There will be a need of intelligent cooperation, of sympathetic effort. These are but a few of the changes that are on the industrial and social program, and in all of them the doctor will find not only an opportunity for enlarged usefulness but a distinct and pressing need for his guidance, for both by education and training he will be better equipped than any other individual to direct the course of change so that it may truly merit the name of Progress. No one who knows the American doctor can believe for a moment that he will either evade the obligation or reject the opportunity that the new era offers.

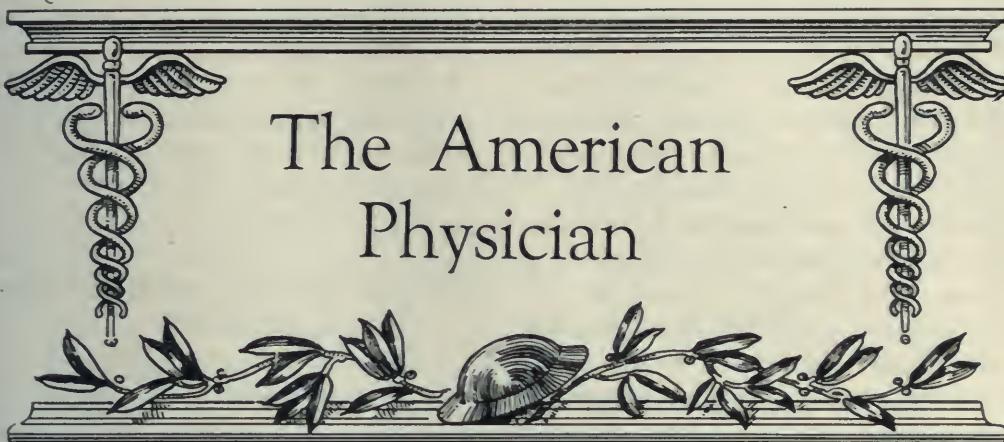
The Nation's Debt to the Doctors.—For the past few months the billboards throughout the country have been covered with posters admonishing citizens to acknowledge their debt to our victorious army by hiring the returned soldier or restoring him to his former job. So intense and insistent has been this campaign, that it succeeded in arousing a consciousness of the obligation we owe to the men who did their bit so magnificently over there and who, it is promised, will do their bit just as well over here. "They Work the Way They Fight," "Hire a Fighter," "Now for a Job"—so read these convincing signs. But nowhere throughout this campaign has there been mention made of a fighter who contributed as much to victory and who sacrificed as much for that victory as any soldier in the service—the doctor in the A. E. F. Fighters these men are, and splendid ones—they fought an enemy which, in former days, killed more men than bullets, disease and epidemic. They fought this enemy so successfully that the health record of the American Army abroad is second to none. Yet who has thought of doing anything for

the returning doctor?

A well known medical writer in discussing this matter has called attention to this unfortunate situation, and his appeal will find a prompt and ready response on the part of all who realize the magnitude of the service the army doctors rendered, the seriousness of their problem on returning to their abandoned practices. Thousands of successful practitioners, many of them with family and other weighty responsibilities, responded to the call of their country without any consideration of themselves or of those dependent upon them, mindful only of their duty to the ideal for which they were eager to give their energies and their lives. Many of these were above the draft age, and they went without waiting to be called, giving up their practices built up after years of arduous labor, severing the closest of ties, throwing their own interests to the winds in their desire to lighten the burden of the men in the service of the national cause. And it is common knowledge that a splendid record is theirs. Now these men are returning, but they are coming back, in numerous instances, to vanished practices, to abandoned homes, to scattered families. Some fortunate ones will find things so little altered that they will be able to pick up the thread of their lives where they left it; but others, many others, will face the distressing prospect of trying to begin at the bottom again, to recover the success which came to them only after years of conscientious service. How many of these will have the courage to face such a trying prospect; and how many, having the courage, will be able to overcome the enormous obstacles? There come to mind instances in our personal knowledge of young doctors who, meeting what seems an almost impossible and altogether forbidding task on their return, seriously contemplate the choice of a new profession rather than try to content themselves with the meagre salvage of their old one. What is being done to lighten the burden of these returned fighters? What can be done?

The situation is indeed a serious one, but fortunately it is an easy one to remedy. And the remedy is a gratifying one because it fulfills an obligation to the returned doctor and at the same time fulfills an obligation, long neglected, to the community. These men can be rewarded for their serv-

ice with profit to society as a whole, for their education and their training can be used to splendid advantage. The returning doctors successfully guarded the health of our soldiers and made our army the powerful instrument for victory that it proved. Why cannot they be enlisted in the service of workers and citizens, to guard their health and wellbeing under the direction of the proper authorities and make the army of peaceful men and women and children the soundest in the world? In the pay of the government, they served the soldiers; in the pay of the government, they can serve the community as well. It is an easy step from an Army Medical Corps to a Community Medical Corps. During war, it is a commonplace that the fitness of the individual soldier is of the greatest importance to the whole regiment or the whole army. We have been altogether too slow in realizing that in peace the fitness of the individual citizen is of vital importance to the whole community. There have been sporadic and partially successful efforts to guard community health in scattered sections of the country, but it is high time that such efforts take on a national and official character. As in the Army, there should be a peace-time Surgeon-General, with a large and efficient corps of assistants and employees, whose duty it would be to keep the population of the country in good health, to educate the public in matters of hygiene and sanitation, to guide the masses in the observation of approved rules for bodily and even mental wellbeing. Such a department, nationally organized and co-ordinated, can be subdivided into smaller groups, so that every community will have its own official health guardians. In to such a plan, the returning doctors whose practices have vanished in their absence will fit splendidly. Their equipment and talents will not be wasted and they can be of inestimable service to the community which they once served in a private capacity; and, in such a way, their value will be increased rather than lost entirely. It would be an unpardonable waste and neglect to allow them to drift into work in which their special fitness would count for nothing. The government should avail itself of the opportunity to engage their services in the interest of the national wellbeing.



*"Duty is his watchword—the word rarest on his lips
—and most constantly illustrated in his daily life."*

—Braisted

"THE MEDICAL PROFESSION SHOULD BE CONGRATULATED."

NEWTON D. BAKER,
Secretary of War,
Washington, D. C.

The record of the medical service with the forces of the United States is such that no word of mine is necessary or can avail

to enhance the brilliance of their cooperation.

When the war ended, more than 30,000 medical officers, exclusive of the Sanitary Corps, Dental Corps and Veterinary Corps, were on duty with the

Army, and nearly half of this number had gone overseas. In the last month of fighting the number of patients cared for by the Medical Corps overseas reached its

peak—about 190,000 cases. There is cause for exultation in the knowledge that for only two weeks did the number of patients in overseas hospitals exceed the normal bed capacity of the hospitals, and that even during that time there was a substantial margin of emergency capacity. I have been told that more than three-quarters of the 230,000 men wounded in action in the A. E. F. were able to return to duty, and that the annual death rate from disease for all of our troops in the present war will be less than 16 as compared with 26 for the Spanish-American War, 65 for the Civil War and 110 for the Mexican War.

As is generally known, a rather intensive inquiry into venereal cases was conducted at five camps covering a number of months. The annual rate per thousand before enlistment was found to be 294.4; after enlistment it was brought down to 10.17.

The medical profession should be congratulated also I think on the practical elimination of typhoid fever as a cause of death in the Army. For the week showing the highest incidence of typhoid fever



the annual rate per thousand for new cases was less than 4, as compared with 141 for the entire period of the Spanish-American War. The Surgeon-General's Office is confident that the rate for the entire period of the present war will not exceed 0.5.

For the services rendered the American Army and the American people none of us can have other than the deepest gratitude and I trust you will make plain to the profession that this Department feels the keenest appreciation for the work that has been done.

"A NEW AND HIGHER STANDARD TO MEDICAL EFFICIENCY."

JOSEPHUS DANIELS,
Secretary of the Navy,
Washington, D. C.

The fighting strength of the Navy, as every military organization, depends upon the physical ability of the men engaged in

the conflict. We have recognized from the beginning our dependence upon the very able and skilful physicians and surgeons in the profession then in the service and those who have come in from civil life as Reserves, and we

have urged them to accept for naval service only men who were physically fit. They did this work so well that the Navy's standard was kept high. After they were admitted into the service our medical officers by good methods of sanitation and pre-

vention, and in treatment administered, have given a new and higher standard to medical efficiency. I cannot speak in terms of high enough commendation of the skilled medical men who have served in the Navy during this great war.

"TO THE NATION ALL THEY POSSESSED."

M. W. IRELAND, M. D.,
Surgeon-General, U. S. Army.

In answer to the call on the civil profession, equal response was made by the young and by the old, by the specialist and by the general practitioner. City and country responded with similar enthusiasm. Special thanks are due to those officers from civil life who, long after the excitement of the actual war has passed, must continue in the service attending the needs of the wounded, while many of their comrades, both in the Medical Corps and in the line, are rapidly returning to their homes and ordinary vocations. In view of the enormous preponderance in the army of physicians fresh from civil life it may be said without reflection on the medical officers of the regular army, that the great achievement of the Medical Department in medicine, in surgery and in sanitation is primarily the work of the civil profession of the United States and is due to the patriotism, fidelity and ability of that great body of practitioners. It is to



be hoped that one of the results of the great war will be the closest sympathy between the Medical Corps of the Army and the medical profession of the country, resulting in the development of a firm conviction in the minds of all civilian practitioners that preparedness for war conditions in the case of each and every physician of military age is a fundamental necessity for attainment to the highest type of citizenship.

Great injustice would be done, did I omit to call attention to the difficult task which was so well and faithfully performed by the physicians connected with the Draft, and which forms another of the important contributions made by the American medical profession toward the winning of the World War.

**"IN EVERY PUBLIC CALAMITY
***** HE IS AMONG THE FIRST
TO VOLUNTEER."**

W. C. BRAISTED, M. D.,
Surgeon-General, U. S. Navy.

The physician always plays the game. In every public calamity—railway accident, fire, flood, famine or pestilence—he appears

on the scene and quietly shoulders the burden of the moment, regardless of personal inconvenience or danger. In war, the greatest of public calamities, he is among the first to volunteer, tho in the hospital or the trench he has little to gain

and as much as any man to lose. The

peculiar beauty of his service is this absolute disregard of reward. It is proffered automatically because in spite of the shortcomings, common to him as a mortal, he has the habit of duty. Duty is his watchword—the word rarest on his lips—and most constantly illustrated in his daily life.

All honor to the unostentatious courage of the American doctors who served in the great war. Some have won a passing word of praise because fortune brought them into notice but all have deserved well of their country, whether they laid down their lives in the struggle or merely imposed added anxiety and privation on their loved ones and themselves faced the uncertainty of war and the uncertainty of the days to follow the war.

Every physician who today basks in the light of heaven, breathes the upper air and tastes the beauty of the forest, field and stream should set up in his heart a shrine to the memory of the brothers that did not come back. There was Doctor John McCrae, Lieutenant-Colonel in the Canadian Forces, author of "In Flanders Fields," the most exquisite lyric of the war, who died of pneumonia in France; there was Surgeon L. C. Whiteside, U. S. N., who reported to the captain that all the sick were safe over the side in boat or on raft and went down with the torpedoed transport; there was Dental Surgeon W. E. Osborne, U. S. N., who having no chance to exercise his specialty on the day of battle went forward with the attacking wave to administer first aid and fell mortally wounded by a German bullet; "and what shall I say more for time would fail me to tell" of the men of all services and all ranks whose mission was to save life amid the universal rivalry to multiply death!

To each of them we might quote the



beautiful words of the Psalmist: "He asked life of Thee and Thou gavest it him, even length of days forever and ever"; to each his countrymen must accord here on earth an immortality in grateful loving thoughts.

"NO CLASS OF PROFESSIONAL MEN EVER SERVED TO BETTER PURPOSE."

JOHN J. PERSHING,

General Commanding American Expeditionary Force,
Chaumont, France.

Every officer and man of the American Expeditionary Forces will gladly join me

in appreciation of the splendid work that the American physicians did for us in France. No class of professional men ever served to better purpose and none have more fully earned the gratitude of those whom they served.



The Heroism of Medical Officers.—

Never have the fighting troops manifested finer courage than that shown by medical officers everywhere—on the fighting line, in rendering first-aid to the wounded, in operating rooms, with Boche aeroplanes bombing the hospitals in which they were working and in the pneumonia and meningitis wards of hospitals where, in administering to the needs of sick soldiers, they have daily and nightly risked their own lives. The casualties in the Medical Corps were second only to those in the infantry.—*War Medicine.*

"WITH CONSPICUOUS UNSELFISHNESS, LOYALTY AND EFFICIENCY."

LEONARD WOOD,

Major-General, U. S. Army,
Chicago, Ill.

The excellent health conditions which existed in the Armies in France, Flanders and elsewhere, were due principally to the work of the medical officers of the various forces—much of it work on the line of preventive medicine. This, together with the enforcement of sound sanitary measures, made it possible to maintain a highly efficient fighting force under conditions and surroundings which, in former years, would have destroyed an army, or would have rendered it ineffective.

Among the medical officers of the various nations, our Americans stood out conspicuously, and to their intelligent, loyal and efficient service the successful conduct of operations is due in a large measure.

The problem of maintaining an army fit to fight is one of the most, if not the most, serious one in modern warfare, and the success with which this was done during the present war speaks volumes for the importance of the medical officer in war.

We can feel that our representatives did their part with conspicuous unselfishness, loyalty and efficiency.



MOBILIZATION OF THE MEDICAL PROFESSION OF THE UNITED STATES FOR SERVICE IN THE GREAT WAR.

FRANKLIN MARTIN, M. D.,

Col. M. C., U. S. Army.

Chairman of Committee on Medicine and Sanitation of the Advisory Commission, and

Chairman of General Medical Board,

Council of National Defense.

I am filled with pride whenever I think of the magnificent response that was made to the request of our Federal Government

that the medical profession be mobilized for service in the great war. It was not only my privilege to be chairman of the Committee on Medicine and Sanitation of the Advisory Commission of the Council of Na-

tional Defense, which latter body played such an important part in the activities of the war, but I was also privileged to act as a member of the Committee of American Physicians for Medical Preparedness, which did such splendid work beginning one year in advance of our actual declaration of hostilities. It was generally conceded among those who were planning for the war that the medical profession in its mobilization was at all times definitely ahead of the game.

There were three distinct departments of the Government which were interested in securing medical men for active service during the war: The War Department, under



Surgeon-General Gorgas; the Navy Department, under Surgeon-General Braisted; and the Public Health Service, under Surgeon-General Blue. In addition to this there were several other organizations that required the services of the best medical men, namely, the American Red Cross, the Young Men's Christian Association, and the Knights of Columbus.

While being extremely interested in the mobilization of medical men for the last three activities, I will confine my remarks here to the three distinctly governmental departments, namely, the Army, the Navy, and the Public Health Service. These three departments, at the beginning of the war, had between them less than 1,200 commissioned officers. Our first duty was to obtain medical officers for the Army and Navy from the civilian medical profession in the proportion of about ten doctors for each one thousand enlisted men. This was accomplished thru organizations already in existence, and thru the General Medical Board of the Council of National Defense, which established a large committee of medical men in each State, known as the State Committee, Medical Section, Council of National Defense. In order to subdivide the work and make it effective, finally county organizations under the respective state organizations were effected in more than 4,000 counties of the United States.

Thru their own organizations, the Army, the Navy, and the Public Health Service, supplemented by the organizations under the General Medical Board and a number of the medical societies of the United States, mobilized approximately thirty thousand medical men for the Army, forty-five hundred for the Navy, and one thousand for the Public Health Service, to say nothing of the medical volunteers in the Ameri-

can Red Cross, the Young Men's Christian Association, and the Knights of Columbus, which brought up the number of medical men at the disposition of the Government to practically forty thousand. There was no difficulty at any time in securing medical men for service; the only reluctance we observed on the part of the doctors was to blindly accept service without a definite assignment. In the first rush of organization we were unable to properly classify physicians so that they would be chosen with reference to their special fitness and desire. However, six months before the end of the war a plan was devised which relieved this uncertainty on the part of the candidates for enrolment, and on the part of the department making the enrolments. This was accomplished thru the organization of the Volunteer Medical Service Corps, under the presidency of Dr. Edward P. Davis of Philadelphia.

This Corps was established after consultation with the Surgeons-General of the Army, the Navy, and the Public Health Service, and the General Medical Board of the Council of National Defense. It was finally approved by the Council of National Defense and the President of the United States. Briefly, it consisted in asking the ninety thousand medical men who were not yet enrolled to agree to serve the Government in any capacity, at any time, or in any place, with the implied reservation, however, that they would be selected, so far as practicable, with reference to their preference for service as indicated on their application blanks. In spite of a subtle propaganda, based on the alleged opposition to men blindly signing an agreement for service, 72,000 of these applications were signed and made the basis of a classification that would have been of inestimable value for

further mobilization for service in any of the departments of the Government. These applications were coded on the Hollerith system of cards, which made it possible to secure almost instantly a group of men classified for any particular service under specialties, in reference to states or communities, age, languages spoken, etc.

To illustrate the working of this system, we will take a hypothetical case: The Surgeon-General of the Army requires one thousand additional medical officers to man an additional one million enlisted men. He asks the Volunteer Medical Service Corps for these 1,000 men under forty-five years of age, selected from all parts of the United States—200 surgeons, 400 medical men, and the balance divided among the various specialties. The Volunteer Medical Service Corps has upon its Hollerith code cards 72,000 volunteers. In twenty-four hours a complete list, with an additional list of 1,000 for good measure, could be furnished to the Surgeon-General, with every assurance that the men upon these lists would immediately accept service. A similar request from the Surgeon-General of the Navy or of the Public Health Service could be met.

A specific case in point is the prompt compliance with the request for medical men by Surgeon-General Blue of the Public Health Service during the influenza epidemic last October. On Saturday we were asked to furnish a list of five hundred medical men who would be willing to serve in the Public Health Service anywhere in the United States. On the following Monday the list was furnished to the Surgeon-General, and he immediately telegraphed to these men for aid. The response was immediate. On Thursday of the same week a request for 500 additional men was made,

and 600 names were immediately furnished, or in all more than 1,100 volunteers were supplied by the Volunteer Medical Service Corps. This tender of service succeeded in more than supplying the demand, and brought forth a letter of appreciation from the Surgeon-General of the Public Health Service.

Another practical proof of the permanent value of the organization of the Volunteer Medical Service Corps is the fact that the present Surgeon-General of the Army, Major-General Merritte W. Ireland, has asked the Council of National Defense to complete its survey and make it a part of the permanent records of the Library of the Surgeon-General, and place at his disposal one or two experts who will keep the records up-to-date.

Thus may be summarized the story of the mobilization of the medical profession of the United States: First, creating national, state and county organizations that aided in the mobilization and classification of medical men required for war service; and, finally, the care of the home population and industries by those who were not called to active service. Mobilization of 40,000 civilian medical men as officers in the Army, the Navy, and the Public Health Service, and 72,000 additional medical men and women in the Volunteer Medical Service Corps enrolled, classified and coded, making a grand total of 112,000 out of a medical population of approximately 140,000.

"The times demand of us clearness in thought and firmness in action. The solidity of our national institutions must be the bulwark against insidious and destructive tendencies.

"The glory of our independence must remain the leaven and our flag the emblem of all that freemen love and cherish."—General Pershing.

"NO CLASS OF MEN GAVE UP MORE FOR THE SERVICE OF THEIR COUNTRY."

W. J. MONOGHAN, M. D.,
Lieut.-Colonel, M. C., U. S. Army,
New York City.

The general sanitary welfare of the nation will gain tremendously in the general health of the people and the cure and prevention of disease as the result of the past few years of study and practice in the medical and surgical branch of the military service. The training in discipline for American doctors as the result of their army work in systematic methods and executive management will be instrumental in developing the better individual equipment of these professional men when they go back to civilian life and will enable them to give to their respective communities the benefit of their studies in the greatest clinic the world has ever known. The same efficient mastery of unfamiliar and unexpected problems will be continued for the American people, the citizens of this country, when these same capable and self-sacrificing American doctors return to continue their labors in mufti. Few persons realize that no class of men gave up more for the service of their country than the physicians and surgeons who joined the medical and sanitary corps of the army.

Many of them abandoned practices which had required years to build up, and in the very nature of the case other men took their



places and will naturally retain them. It is not so easy for a doctor, even a specialist, to come back. Often he must begin all over again. The self-sacrificing and cheerful elimination of personal interests that has characterized the men and officers of the medical and sanitary corps will never be fully known.

**"NOT AT ALL SEEING WHAT WAS
TO COME AFTERWARDS."**

WM. C. GORGAS, M. D.,
Surgeon-General (Retired), U. S. Army,
Panama.

I think about the most remarkable thing in the organization of the Medical Department of the Army for this great war thru which we have just passed is the extraordinary way in which the doctors responded to the call of our country. The greatest men of our profession gave up their large incomes and great practices and cheerfully entered the service.

It impressed me greatly to see such great men as Welch, Mayo and Billings sacrifice all as they did when called upon for duty, but what appealed to me most were the thousands of young doctors who had just made a start in life with a wife, one or two children, and building a home, who just as cheerfully responded to the call, not at all seeing what was to come afterwards. Some thirty thousand of these men volunteered their services and were accepted.



"RENDERED AS FINE AND DISTINGUISHED SERVICE AS ANY OTHER BRANCH OF THE MILITARY."

THEODORE ROOSEVELT,
Lieut.-Colonel (Retired), U. S. Army,
New York City.

I am happy to tell you concerning the medical officers who served with and around me during the past war.

Capt. E. D. Morgan of Clay Center, Kansas, was my Battalion Medical Officer during the greater part of the war. No finer service could have been rendered than his. He worked with his duties solely in mind and considered no danger to himself.

Lieutenant Skilling was killed while on duty with my regiment four days before the finish of the war.

Major Kenner was always cool under most trying circumstances, a constant inspiration to those who worked with him.

These are only a few of the numerous instances that came under my personal observation. Indeed, as far as my experience went the medical officers who served in the war, especially those who served with the front line troops, rendered as fine and as distinguished service as any other branch of the military.

"Never miss an opportunity to do something."—Major-Gen. Leonard Wood.



SPECIAL ARTICLE

ACTIVITIES OF THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY DURING THE WAR.

BY

M. W. IRELAND, M. D.,
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Washington, D. C.

The Medical Department of the United States Army is charged with the duty of investigating the sanitary conditions of the army and making recommendations in reference thereto, of advising with reference to the location of permanent camps and posts, the adoption of systems of water supply and purification, and the disposal of wastes, with the duty of caring for the sick and wounded, making physical examinations of officers and enlisted men, the management and control of military hospitals, the recruitment, instruction and control of the enlisted force of the Medical Department and of the Nurse Corps, and furnishing all medical and hospital supplies, including those for public animals. At the head of the Medical Department is the Surgeon-General of the Army. The Department includes the Medical Corps (consisting of physicians), Dental Corps, the Veterinary Corps, the Sanitary Corps (consisting of sanitary engineers, psychologists, food experts, X-ray experts, chemists, administrative officers and a variety of others with special attainments), the Nurse Corps (consisting of female nurses), the U. S. A. Ambulance Service and the enlisted personnel.

The Medical Corps of the Regular Army was, of course, entirely inadequate to ren-

der the professional care for the vast new armies, but was peculiarly fitted by reason of its experience and training to handle the medico-military administrative problems and to train the new medical officers, fresh from civil life, in their duties as officers, sanitarians and administrators. Consequently, nearly every regular officer was placed in an administrative position. Those regular officers particularly qualified were assembled in the office of the Surgeon General, and with them was associated the best civilian talent of the country—not only surgeons and internists, but also renowned specialists in the eye, ear, nose, throat, in dentistry, in oral-plastic surgery, in roentgenology, in sanitary engineering, in psychology, in epidemiology, in food and nutrition, in veterinary medicine, etc. Invaluable service has been rendered by these efficient and enthusiastic advisers from civil life.

At the height of its activity during the war the office of the Surgeon-General was organized in the following Divisions:

Division of Sanitation
Hospital Division
Personnel Division
Laboratory Division
Division of Physical Reconstruction
Division of Medicine
Division of Surgery
Finance and Supply Division
Library Division
Air Service Division
Gas Defense Service
Food Division
Overseas Division
Division of Head Surgery
Medical Officers Training Camp Division
Veterinary Division.

Most of the divisions were divided into numerous sections. Of the above divisions several have now been discontinued and their activities embodied in other divisions as sections thereof. Below is a brief de-

scription of the work accomplished by these divisions.

The largest division, and that primarily concerned in the sanitation of camps and the prevention of disease, from an administrative point of view, is the Division of Sanitation.

The Division of Sanitation, which has for many years been one of the three permanent divisions of the Surgeon-General's office, has undergone great expansion during the war, and its duties rapidly extended to the handling of all questions relating to the health and well-being of troops and the sanitation of camps, cantonments, permanent posts, hospitals, ports of embarkation, transports, military trains and other military stations. Its function includes the physical examination and selection of recruits and registrants; the physical examination of soldiers prior to demobilization; the selection of camp and division surgeons, camp and division sanitary inspectors, epidemiologists, sanitary engineers and surgeons for recruit depots; the direction of medico-military activities in camps, cantonments and other stations in so far as they relate to the Surgeon-General's office; supervision of the hygiene and sanitation of camps; advising the War Department with reference to camp sites, housing, air space, clothing, food, water supplies, sewerage systems and garbage disposal; the control of fly and mosquito breeding and the elimination of these pests; the destruction of lice and other disease-bearing insects; the search for and quarantine of "carriers" of disease and "contacts" with disease; the design and construction of quarantine and construction camps; the administration of quarantine and other measures necessary to prevent the spread of communicable diseases, and

the inspection of camp, post, base and general hospitals. In sum, the activities of the Division of Sanitation include all the functions of a health department in a civil community and many other duties in addition. In this work the men from the civil professions have rendered efficient aid as camp sanitary inspectors, camp epidemiologists, camp sanitary engineers, laboratory experts, etc., and also in the capacity of supervisors of special activities in the office of the Surgeon-General.

The Inspection Section of the Division of Sanitation caused frequent inspections of all military stations to be made by experienced sanitary inspectors. When sanitary defects or deficiencies are brought to the attention of the Surgeon-General's office immediate steps are taken to correct them, either by instructions sent to the Camp Surgeon, if the correction lies within his power, or by correspondence with the higher authorities of the War Department, if this action is necessary. Ultimate report as to action taken and results obtained is received in this division and filed. Over 700 inspections have been made by this section.

The Current Statistics Section received and consolidated daily and weekly telegraphic reports of sick and wounded, and prepared weekly reports of health conditions which were given freely to the press.

The following figures indicate the enormous reduction in deaths which has resulted from the sanitary measures enforced during the present war as compared with the practice in vogue in the Civil War, the Franco-Prussian War, the Spanish War, and the Boer War. The figures indicate the actual deaths which occurred during the period between September 1, 1917, and May 2, 1919, in our army, both in the

United States and in France, which had an average strength of 2,121,396, and the number of deaths which would have occurred in an army of the same size for the same period if the mean annual death rates for the Civil War and for the Spanish War, respectively, had prevailed during the present war. The figures for the present war are based upon current telegraphic reports and while approximately accurate may be subject to slight revision on completion of final statistics:

	Number of deaths that occurred in present war, Sept. 1, 1917-May 2, 1919. Average strength approximately 2,121,396	Number of deaths that would have occurred if the Civil War death rate had obtained	Number of deaths that would have occurred if the Spanish-American War death rate had obtained
Typhoid fever	213	51,133	68,164
Malaria	13	13,951c	11,317
Dysentery	42	63,898b	6,382b
Smallpox	5	9,536	37
Pneumonia	41,747a	38,962a	6,086
Scarlet fever	167	112	222
Diphtheria	100	1,188	149
Tuberculosis	1,220	9,574	631
Meningitis	2,137	3,839	4,081
Other diseases	3,768	34,881	15,587
Total of diseases	49,412	227,094	112,656

(a) Includes deaths listed from measles, influenza, empyema, inflammation of the lungs and pleurisy, as well as pneumonia.

(b) Includes dysentery and diarrhea.

(c) Includes malaria and remittent and congestive fevers.

In the Franco-Prussian War the Germans lost 9,000 men from typhoid fever. With reference to the typhoid in the Boer War, Colonel F. F. Russell quotes from Leishman, "Antityphoid Vaccination," Glasgow Med. Jour., 1912, LXXVII, 408:

"We know in general that there were 57,684 cases of typhoid and 8,022 deaths among 380,605 men."

The low death rate from tuberculosis in the Spanish War is due to three causes: *First*, that the war was of short duration; *second*, that the war period was in the summer; *third*, and most important, that all cases of tuberculosis were discharged from

the service almost as soon as diagnosed and so the deaths when they occurred were credited not to the army but to the civil community. In our present war nearly all tuberculous soldiers are held in the army for indefinite sanitarium treatment, and of course a certain per cent. will die in the service while the majority are being cured.

The number of deaths from pneumonia is much greater than for the Spanish War comparison. The Spanish War rates were low because the war period was entirely in

warm weather when pneumonia is infrequent. The greatest cause of the high pneumonia rate for the present war was the pandemic of influenza, a factor which occurs only about once in 30 years. Had this epidemic not occurred the rate would have been much lower than for the Civil War and probably lower than for the Spanish War. Taken all in all, however, it must be confessed that the secret of the control of respiratory diseases, particularly pneumonia, still remains undiscovered.

The duty of the Hospital Division is to provide and operate all military hospitals in the United States,—that is to say, to care

for all sick and injured of the armies in training in the United States and also for the cases returned from overseas. This plan comprehended some 600 separate locations of military medical activity. These hospitals were designed, built, maintained and administered in very much the same way. The construction of new hospitals especially was standardized as much as possible, since it was realized that this would aid greatly in their operation and future alteration. Camp and base hospitals were constructed in each camp to care for the sick of that camp. General hospitals were constructed to care for overseas cases and the most severe domestic cases. It was believed unwise to mix the maimed soldiers from the American Expeditionary Force with the raw recruits preparing to embark overseas. The general hospitals were distributed thruout the United States so as to allow the sick to be sent as near to their homes as possible and were located with reference to density of population, railroad facilities and available convertible buildings.

The procurement of additional hospital facilities for the greatly increased army in the United States was accomplished in two ways: *First*, by constructing new hospitals with a total of 88,460 beds; *second*, by converting some army posts into hospitals and by enlarging some post hospitals, together giving a total capacity of 35,439 beds. The army hospital capacity was increased 1850 per cent. within a period of twenty months.

A single base hospital, with a capacity of 2,000 beds, includes more than 90 separate buildings and about two miles of covered corridor.

In addition to the permanent staff at each large hospital, a second complete administrative staff was formed to be used as a nucleus in organizing new field units and

new hospitals to be opened up. The method was for the commanding officer and each administrative officer to have an understudy who assisted him in all of his duties and who was trained to either take up the work of his chief when the latter was relieved or to establish the same line of work elsewhere. This scheme made possible the prompt establishment of new hospitals whenever required. About 98% of the medical officers in the hospitals were freshly drawn from civil life.

From April 7, 1917, to April 30, 1919, there were transferred to the interior hospitals of the United States from New York 89,333 cases and from Newport News 32,246, making a total of 121,579. During the same period there were 20,327 domestic cases moved by the inter-hospital transfer in the United States, making a total of 141,976 dispositions handled by this division, and an equal number of patients moved by train.

The statistics of this office show that during the period of the emergency there were operating on a monthly average 30 general hospitals, 38 base hospitals and 131 miscellaneous hospitals for the care of the sick in the United States. Each of these hospitals had on duty an average of 33 medical officers, selected from the best personnel of the army and country at large, 88 trained nurses and 465 enlisted men of the Medical Department. In round numbers 2,000,000 sick were treated in these hospitals from the time of the first draft in 1917 to April 25, 1919. The total number of medical officers, nurses and enlisted men employed in the army hospitals during the period of the war would furnish the entire population for a city the size of Albany, New York. At one time 150,000 beds were set up for men in the army hospitals. If

these beds were placed end to end they would form an almost unbroken line from New York to Washington.

On April 6, 1917, the Medical Department had approximately 981 commissioned officers, 403 female nurses, and 6,900 enlisted men on active duty. On December 1, 1918, there were approximately 40,100 commissioned officers, 31,480 female nurses and 264,000 enlisted men. The records of these officers and their active duty status were under the supervision of the Personnel Division, which at the beginning of the war consisted of one officer and ten clerks. On December 1, 1918, the Personnel Division had increased to fifteen officers and three hundred and eleven clerks.

Upon declaration of war, it became immediately necessary to call upon the medical profession of the country to augment the Regular Medical Corps in order to provide adequate medical care and treatment for the enormous armies which it was certain would be brought into the field. The task of classifying, commissioning and assigning new medical officers was suddenly thrown upon the Personnel Division of the Surgeon-General's office. The statistical Section indexed and classified all available physicians of the country, the cards being arranged alphabetically, by states and by specialties. Since January 1st, officers have been discharged from the Medical Department at an average rate of nearly one thousand per week.

On the day the United States declared war with Germany there were in the Army Nurse Corps 233 members of the Regular Corps and 170 reserve nurses on active duty because of the mobilization of troops on the Border. The needs, both in this country and in France, increased enormously and at the time of signing the armistice

there were approximately 21,500 nurses on active duty, about 10,000 of them being overseas. These 21,500 women were not employees of the Red Cross, but were nurses enrolled and paid by the United States Government as an integral part of its Medical Department. To supplement the waning supply of graduate nurses the Medical Department established the Army School for Nurses. For this school 10,767 young women made application, 5,517 were accepted and 1,600 were in training at 53 different hospitals when the armistice was declared.

The duties of the Division of Laboratories and Infectious Diseases may be termed, broadly speaking, the control of communicable diseases, more particularly from the standpoint of laboratory methods; the diagnosis of these diseases by these same methods; and the accumulation of materials, by research and by observation of the individual cases, for the further study of these conditions. In addition, the administration of the Surgeon-General's program for combating venereal diseases was assigned to this division, so that in this class of diseases all methods of control were combined under one head.

The problems presented to the Division of Laboratories and Infectious Diseases were both varied and extremely important in their relation to the prevention of war-stage in troops. Developments in sanitation and sanitary control and in specific preventive measures, such as vaccines, indicated that the intestinal group diseases (typhoid fever and dysentery), which have wrought such havoc in the armies of the past, would be controlled by the protection given by typhoid and paratyphoid vaccine and by adequate general sanitary measures. The expectations in regard to this group of

diseases have been confirmed. Typhoid fever has occurred in the devastated and extremely insanitary regions of the Western front, but the incidence has been low, and typhoid fever during the present war has never been a serious menace.

Epidemic cerebro-spinal meningitis is always an important disease when troops are mobilized. Infection in this disease is transmitted by discharges from the mouth and nose. Specific measures of control by means of serum treatment were used throughout the service. The laboratories of the army examined hundreds of thousands of men to discover those who, tho not having the disease, were yet capable, as healthy "carriers," of transmitting it to others. The discovery of these so-called "carriers," and their isolation and treatment to render them harmless to others, was one of the most important tasks of the laboratories.

To handle the laboratory problem efficiently it was necessary to practically control the production of medical laboratory apparatus and supplies. Germany and Austria have produced in the past the large proportion of the laboratory glassware and chemicals used in this country, and it was necessary to adopt standard types of apparatus for the work of the laboratories of the army and to stimulate the manufacture of this apparatus and to initiate the production in this country of certain indispensable chemicals. In this the Army was aided greatly by the cooperation of the Medical Division of the National Council of Research.

To produce the necessary sera and vaccines for the prevention and treatment of disease in the Army and Navy, the Army Medical School increased its power of production to a marked degree. Thousands of gallons of typhoid and other vaccines were

produced and large quantities of special serums made for diagnostic purposes.

The administration of the Surgeon-General's program for combating venereal diseases constitutes perhaps one of the most important sections of the work of the Division of Laboratories and Infectious Diseases. The problem of the venereal diseases has always been of vital interest to all armies and the fight against this class of infections has been carried on most actively and openly in the Army for many years. With the passage of the draft act it became evident that it would be necessary to extend the fight to the civil population, not only as the latter was a source of infection to the Army, but also that every effort might be made to diminish the incidence of these diseases among men drafted and about to be drafted. To accomplish this more effectively a section for combating venereal diseases was added to the War Department's Commission on Training Camp Activities. This section worked in close liaison with the office of the Surgeon-General, more particularly as the administration of this section and the personnel for the work was furnished by the Surgeon-General.

The activities of this program for combating venereal disease were divided into Educational, Law Enforcement and Early Treatment Sections.

From incomplete statistics of the war it is shown that of 225,000 cases of venereal disease 200,000 were contracted before enlistment, that is, before the men joined the army. The record of the army for cases contracted after enlistment has been good, showing the effect of the combination of the several measures included in the Surgeon-General's program.

In addition to these preventive measures

adequate treatment has been provided for every soldier infected with this class of disease, and not only that but under present regulations men so infected, whether they brought the disease into the Army with them or acquired it after entrance, are being retained in the service until they are no longer infectious to others or a danger to the community to which they go.

When war was declared there were eighty-six commissioned dental officers in the Regular Army of the United States. There were approximately thirty dental officers in foreign service, viz., in the Philippines, Hawaii and Panama, the remaining officers being scattered thruout the United States. On November 13, 1918, there were 6,254 dental officers commissioned, of whom 4,286 reserve officers and 224 regular corps officers were in active service. There were approximately 2,000 with the American Expeditionary Forces.

Schools were established in Philadelphia, Chicago and St. Louis to give special training to officers who were to do oral and plastic surgery, and dentists were assigned to these schools for that training and have been associated with the surgeons thruout the war in this special work.

The policy of physical reconstruction of disabled soldiers, later extended to disabled sailors and marines, was formulated in the office of the Surgeon-General in August, 1917; practically applied in seven hospitals early in 1918; and the policy and program were finally approved by the War Department on July 29, 1918.

Physical reconstruction as applied in military hospitals is defined as continued treatment, carried to the fullest degree of maximum physical and functional restoration consistent with the nature of the disability of the sick or injured soldier, by

the employment of all known measures of modern medical and surgical management, including physio-therapy, (thermo, electro, hydro, and mechano-therapy, massage, calisthenics, gymnastics, military drill and the like), curative mental and manual work (in wards, shops, schools, gardens and fields) and sports and games in and out of doors.

For administration the Division of Physical Reconstruction in the office of the Surgeon-General was organized with a personnel of a Director and assistant, with sections on education (general, technical, agricultural and psychologic); training the blind; training the deaf and correction of speech defects, and physio-therapy.

There are special facilities for training the blind and nearly blind soldiers, sailors and marines at U. S. Army General Hospital No. 7 at Roland Park, Baltimore, Maryland. The blind are trained to dress, feed themselves and to get about independently; to read Braille; and to use a typewriter. Coincidently, occupations suitable for the blind are taught by a corps of competent instructors.

The disabled soldiers who suffer from speech defects and from deafness are trained to talk and to understand by lip reading at U. S. Army General Hospital No. 11, Camp May, New Jersey.

Curative work modified to meet the need of the tuberculous soldiers is applied in a most beneficial way at seven military tuberculosis sanatoria.

Before the armistice was signed, approximately 10,000 disabled soldiers were returned from the American Expeditionary Force to the United States. These were cared for in sixteen General Military Hospitals, and those who needed it were given the benefit of the continued treatment

known as physical reconstruction.

Following the armistice, the return of the sick and injured from overseas was expedited. From November 11, 1918, to May 1, 1919, approximately 110,000 disabled soldiers from the American Expeditionary Force have been returned to America. This has required the Medical Department of the Army to secure facilities for the application of measures of physical reconstruction in additional general hospitals and in fifteen base hospitals of the training camps. At the height of the maximum degree of hospitalization, since the armistice was signed, forty-eight hospitals have functioned in physical reconstruction. At the present time, forty-four general and base hospitals carry on this type of treatment.

Of a total number of reconstruction patients discharged for disability to April 1, 1919 (5,070), approximately 41 have been designated as hopeless or institutional cases; 510 have been reported as in need of further training, while 4,519 were able to resume their old occupation or were not in need of retraining. Many disabled soldiers have been so fully trained vocationally while patients in the hospitals that they have needed no further training after their discharge.

The need was recognized for the education of the public and of the disabled soldiers themselves as to the value of curative work in the continued treatment of the sick and wounded soldiers. In cooperation with the Federal Board of Vocational Education, the American Red Cross and the public press, circulars, pamphlets, the magazine "*Carry On*," and articles prepared for popular monthly magazines and the daily press have been circulated thruout the country and in the hospitals.

The Division of Medicine consists of four

sections: Psychology, Neuro-psychiatry (nervous and mental diseases), Tuberculosis and Internal Medicine (all diseases not included in the above). The function of the Section of Psychology is twofold: *First*, to determine the mental capacity of the individual; *second*, to classify men so that, as far as practicable, an individual's previous training and mental development will be given due consideration when the specific assignment in the Army must be made.

The activities of the other sections of the Division of Medicine are concerned with two functions: *First*, physical examination of men sent to the mobilization camps and the final physical examination upon demobilization in so far as medical conditions are concerned. *Second*, care and treatment of sick in the service.

The Medical Department convened certain boards, consisting of experts in their respective branches, at mobilization camps for the more complete examination of all soldiers who had passed the preliminary physical examination. The members of these Special Boards were represented by specialists in tuberculosis, in diseases of the heart and arteries and in nervous and mental diseases. Nearly 60,000 men were rejected on account of defective development or diseases of the nervous system; nearly 80,000 men were rejected on account of various forms of tuberculosis; and about 50,000 men were rejected on account of diseases of the heart and arteries.

The second function referred to above, the care of the sick, has been handled by the establishment in every important hospital of medical services, presided over by experienced physicians who are not only expert in diagnosis and treatment, but are also administrators capable of organizing

and supervising the extensive services which, during epidemics, tax the abilities of the most able men and equal in difficulty the problems encountered by the surgical staffs at hospitals near the front. In addition to the care and treatment given patients in the hospitals at the mobilization camps, a number of special hospitals have been established at various places in the country for the treatment of certain diseases or groups of diseases. These hospitals have been manned by the ablest men in the profession and experts in their respective spheres for a number of years.

It is the duty of the Medical Department to care for soldiers who have incurred sickness or disability incident to the service, until they are cured, or the maximum amount of improvement has been attained. Finally, on discharge from the service a careful physical examination is made of each soldier in order to determine whether any disability exists at the date of separation from the Army, and, if so, to estimate the degree and make it of record so that future claims and rights of the individual can be adjudicated with justice to the soldier and the Government. This Division provides the special personnel for the medical portion of this examination. Specialists in all lines cooperate in this final examination.

The Division of Surgery developed *pari passu* with the Division of Medicine. In a short time the Surgeon-General appointed a number of surgeons eminent in the civil professions who were to act in an advisory and executive capacity. Three distinct lines of effort at once opened up. *First*, as the concentration camps were established and opened for the training of troops, the establishment of base hospitals in connection therewith necessitated the organization of

a surgical personnel to look after the ordinary surgical ills of a large camp. Thru the efforts of the Red Cross fifty base hospitals and a few other hospital units had been raised and equipped from the great medical centers and some other places. Some of the best of the surgical profession were included in these groups. It was evident that many more units would be needed and it was the second task of the Surgical Division to arrange for the organization of the surgical side of these units. *Thirdly*, many of the most important surgical instruments, needles, etc., had previously been imported from England and Germany. There was no standardization in civil life, the surgeon using that which from experience or fancy had seemed to him the best. The committee of surgeons met and standardized these instruments so that the equipment of every base hospital, or of every hospital unit sent abroad, would be identical, thus assuring an ample supply of the most modern and efficient types.

The rotating consulting surgeons working with the Surgeon-General could not know more than a few of the experienced surgeons of the country, or the active, promising young men of the profession; consequently a scheme was devised whereby the qualifications of every civil surgeon were placed on cards, which were sorted and resorted until the relative standing of each man was known. Additional information with regard to the qualification of surgeons was secured in many ways, one of the most important being the local organizations of the Medical Section of the Council of National defense.

As a result of the study of these qualification cards it was found that the actual number of physicians capable of doing the special work required by reason of the casu-

alties of war was limited. Accordingly, schools of instruction were established in general surgery including fractures, in neurologic surgery, in plastic and oral surgery, in orthopedic surgery, etc. These schools were located in well known centers such as New York, Philadelphia, Chicago, Rochester, San Francisco and New Orleans, and were under the charge of experienced surgeons and teachers. The successful method of Carrel at Compiègne was established at the hospital of the Rockefeller Institute, and a continual stream of medical officers passed thru this institution studying this method of treatment.

By November, 1917, the work of organizing base and evacuation hospitals was well under way and a little later the organization of Mobile Units was begun. From then on until the armistice, one hospital after another, unit after unit, was organized, mobilized, equipped and sent abroad. This necessitated a constant shifting of the surgical personnel of the camp and cantonment hospitals, and it was found necessary to gradually work into places on the permanent staff the older and less active, but nevertheless competent surgeons in order to set free the younger and more active ones for overseas service.

Many hundreds of complete X-ray equipments were purchased and supplied to the troops overseas and all the military hospitals in this country were completely equipped with everything that could be desired for X-ray work. One of the most important developments of the war is a portable X-ray apparatus which was to be found scattered over the front wherever needed.

A literary program was an important part of the surgical organization. Special books were written with wonderful speed;

the experience of French, English and even German surgeons was collected and abstracted and distributed to our medical officers; a review of the war literature was issued monthly. Lantern slides and moving picture films were made and used for instruction. Finally, during the summer of 1918 a large surgical school was established as a branch of the Medical Officers' Training Camp, at Fort Oglethorpe, Georgia, a faculty formed, a systematic course of instruction begun and carried on to the time of the armistice.

The enormous number of men located in camps in this country required a large force of skilled surgeons and assistants and by July, 1918, a complete survey of the character of the surgical work was made, and a system established by which it was possible in Washington to check over all operations and determine if the highest class of work was being done. When the pneumonia epidemic swept the camps it was followed by a wave of empyema which, owing to its severity and unusual nature, temporarily baffled the surgeons. An Emphysema Commission was appointed which went from camp to camp studying the surgical aspects of this disease, and thru its suggestions and directions much good was done. After the armistice was signed the reconstruction era began and it was now the duty of the Division of Surgery to prepare for the care of the stream of wounded returning from the overseas hospitals. These were classified in certain large groups of which compound fractures, peripheral nerve injuries, stiff joints and amputations constituted the most important. With some fifty hospitals receiving patients, and with the personnel thereof everywhere greatly depleted of specialists in order to supply the services abroad, it was soon realized

it would be necessary to concentrate the injuries most difficult of treatment into special hospitals where a sufficient personnel and equipment could be gathered to meet the various indications of treatment. This was particularly true of the peripheral nerve injuries. Centers also were established to which cases of amputations were to be sent and preparations made for the application of provisional limbs during the long period in which such cases must wait for the application of permanent limbs. The matter of artificial limbs was thoroly investigated and a standard provisional and a standard permanent limb adopted and given to the soldiers.

At the outbreak of the war with Germany the Division of Finance and Supply of the Medical Department had its need for supplies computed in such a manner as to permit its ready adaptation to any size army it might be called upon to equip. In cooperation with the Medical Section of the Council of National Defense, it held conferences with representative committees of manufacturers of surgical instruments, pharmaceuticals, laboratory supplies, surgical dressings, hospital equipment, etc., and succeeded in getting these industries lined up for full, complete and enthusiastic support of the Medical Departments of the Army and Navy. New sources of supply were developed as rapidly as it became evident that existing sources would prove inadequate.

The equipment needed for each individual camp was carefully computed and the supplies ordered shipped considerably in advance of the day the first troops were scheduled to arrive. Unit equipment was devised for base hospitals, camp infirmaries and the various other organizations. Sufficient equipment for the establishment

of a base hospital of 500 beds was sent to every camp before the arrival of troops, and ambulances were also provided for the transportation of the sick. By the end of September, 1917, at least 14 standard ambulances had been delivered to every camp. In one instance, at the establishment of a large hospital at Newport News, the first carload of supplies for the hospital actually arrived six days after the request for the equipment had been phoned in to the Surgeon-General's Office.

Great quantities of surgical dressings were purchased. The quantity reached such magnitude by the end of March, 1918, that the thread which entered into the weaving of the gauze actually furnished, if tied into one string, would have reached from the earth to the sun. Surgical and dental instruments were the most difficult of all the equipment to obtain. In pre-war times, only about 10% of the domestic requirements for surgical instruments were produced in the United States; the rest being imported, largely from Germany. At the signing of the armistice there was a sufficient quantity of these supplies in France to have taken care of an army of 2,000,000 men for more than six months.

At the signing of the armistice, the Medical Department had in sight sufficient supplies and equipment for 700,000 hospital beds, with 300,000 cots in reserve for crisis expansion.

The designs of ambulances were perfected and approximately 2,700 of the Ford type and 3,600 of the large G. M. C. type have actually been delivered. As showing what such a number of ambulances might accomplish it may be said that one Evacuation Ambulance Company alone, with 12 machines, reported the evacuation of 55,000 patients, and credits each machine with

a mileage of 25,000 miles, during the period from July 17, 1918, until it ceased to function after the armistice.

The laboratory equipment of our Medical Department has been the most complete and elaborate supplied to any of the Allied Armies. Biologic products have been furnished in enormous quantities. Not only has enough anti-typhoid vaccine been furnish to vaccinate an army twice the size of the total number of troops called to the colors, but thousands of litres of anti-meningitis serum, anti-pneumococcic serum, anti-dysenteric serum, anti-tetanus serum and diphtheria antitoxin have been furnished at home and abroad.

The Air Service Division was maintained during the height of aeronautic activity to particularly supervise the Medical Department activities pertaining to the Air Service. It administered the medical service at aviation fields and with mobile aviation units, and established a central laboratory for investigating all problems regarding the health and well being of the aviator.

The Gas Defense Service was, during its inception and organization, attached to the office of the Surgeon General, and had to do with all defense measures against poisonous gases. Its primary function was the development and manufacture of gas masks for both men and animals. Other defensive measures included fans for removing gas from trenches, sprays for the neutralization of gases, instruments to detect the presence of gas, substances for application to the goggles of masks to prevent them from fogging, etc. Ultimately the functions of this section were taken over by the Chemical Warfare Service at the War Department, which handled all matters connected with gas warfare both offensive and defensive.

The Food Division gave technical advice on food products, rations, diets and food conservation, made numerous food surveys at camps and compiled statistical reports on same. It also directed special laboratory investigations relating to food preservation, food conservation and food values.

It early became apparent to the Surgeon-General's Office that schools for the training of civilian physicians in their duties as medical officers were essential if the best results were to be obtained. Consequently, on June 1, 1917, training camps for medical officers and enlisted men of the Medical Department were opened at Camp Greenleaf, Chicamauga Park, Georgia, Ft. Riley, Kansas, Ft. Benjamin Harrison, Indiana, and Ft. Des Moines, Iowa. In December, 1917, the camps at Ft. Benjamin Harrison and Ft. Des Moines were closed, the personnel and equipment being transferred to Camp Greenleaf and Ft. Riley, which were continued to the end of the war.

The purpose of these camps was to give an intensive course of training in military matters and in the application of the practice of medicine and surgery to the military life. The course was primarily for medical officers who had received commissions in the army, and for instruction of a similar character to the enlisted personnel of the Medical Department. Subsequently courses were given officers of the Dental, Veterinary and Sanitary Corps.

During the continuance of these camps approximately 15,000 medical officers and 140,000 enlisted men received instruction.

At Camp Greenleaf, in addition to instruction of a purely military nature, there were given professional courses pertaining to the various specialties.

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INSECT-BORNE DISEASE IN AR- MIES:

BY

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Introductory.—The phenomenon of the use of intermediate hosts by parasites, especially worms, has long been known to zoologists. The knowledge that insects act as the intermediate hosts of the parasites of many of the diseases of man and animals is mainly the result of research during the last three decades. The suggestion that insects might be concerned in disease causation had been made previously. Notably mosquitoes were suspected of being responsible for malaria and yellow fever. It needed, however, modern methods of investigation to prove these associations. The first definite proof was forthcoming when Manson showed that the worm which causes elephantiasis was conveyed from man to man by the bite of a mosquito. Bruce proved that the conveyance of the trypanosome which produces the fatal nagana in domestic animals in Africa was by means of the tsetse fly. Reed, Carroll and their co-workers demonstrated that the unknown virus of yellow fever was carried by the common mosquito, *Stegomyia fasciata*, and about the same time

Ross incriminated the Anopheline mosquitoes in the transmission of malaria—perhaps the most important discovery of all. This was just twenty years ago, and since then much knowledge has been gained; insect after insect, ticks and mites have been convicted, and disease after disease has been added to the growing list of those which are insect-borne. Especially during the last ten years have we learned that these phenomena are by no means peculiar to the tropics but that the sanitarian of temperate and cold countries also must take a vast interest in the external as well as the internal parasites of man.

Some of these parasites, such as the itch mites, which invade the tissues of the body, are themselves the cause of disease. The vast bulk, however, are harmless creatures originally and only become dangerous when they have infected themselves on the excretions of diseased man, or have imbibed the virus of disease while sucking blood from man or animal. In a few instances the infection may pass thru more than one generation of the insect or tick without the intermediary of a warm-blooded animal, but usually this is not the case and each individual commences with a clean sheet. Rarely does the vector itself seem to suffer any ill effects from the harborage of the virus, tho this may be as truly parasitic in it as in the higher animal. The fleas carrying plague form an exception to this.

The *Bacillus pestis* multiplies in the gut of the flea until it becomes choked and in its struggle to feed in the choked condition it ejects a mass of the bacilli into the wound it has made.

The Casual Association of Certain Diseases with Insect Vectors.—For practical purposes we may divide the disease-carrying insects and ticks into two broad

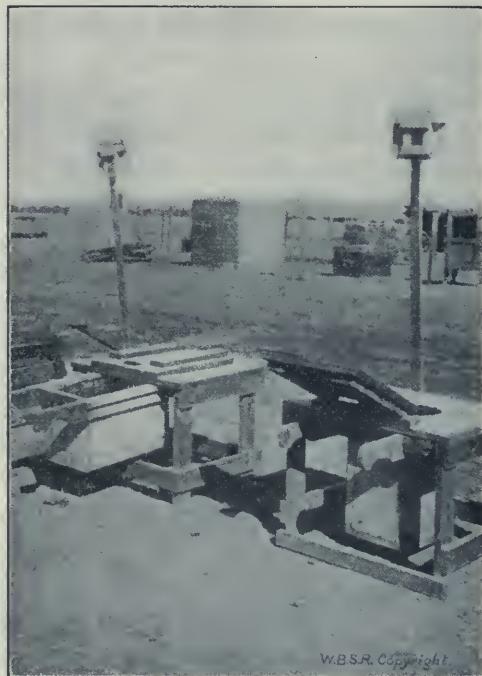


FIG. 1. Sanitary Demonstration Center, Basra, showing in foreground types of Fly-Proof Latrines with petrol tins suspended from sliding runners. The seat-cover on the right is badly arranged. It falls back too far to be self-closing.

classes. The first class includes those which carry the germs in a mechanical manner. In these the virus does not necessarily multiply and the carrier is infective from the moment when it first picks up the infection. These belong to the Diptera, or two-winged flies, and mostly fall into the families Muscidae, Sarcophagidae and Anthomyidae. The species incriminated are those which

haunt the dwellings of man and are attracted to his food and to filth. The most important ones are *Musca domestica* (the "house fly" or, as Howard calls it the "typhoid fly"), *Calliphora* spp. and the allied forms (the "blow flies"), *Sarcophaga* spp. (the "flesh flies"), and *Fannia* spp. (the "lesser house fly" and "latrine fly"). These are all very prolific flies and their footless larvae, or maggots, live in fermenting vegetable matter, in dung, or in decaying flesh. In hot weather the larvae grow at a surprising rate and have a very short pupation period which they spend buried in the ground near their food. As an instance of their fecundity, *Musca domestica* lays about 700 eggs and these may become adult flies in a week. As generation succeeds generation while suitable conditions last, it needs little imagination to realize the vast swarms which may be bred in insanitary camps in hot countries. At Gallipoli it was impracticable to land sanitary supplies, and sanitation was compulsorily primitive. It is related that there when a shell burst in "no man's land" a vast black cloud of flies arose, to slowly settle again. In some parts the flies were so troublesome that when a man received his ration he would thrust it into his pocket and thence convey it in fragments to his mouth, waving his hand over it to ward off the swarming pest. Men returned to England from the East unable to eat jam owing to the nausea aroused by the recollection of the swarms of flies they had seen on this comestible.

Not all these flies breed regularly in human excrement but all have a liking for it. They divide their attention between this and similar substances and the food and drink of man. Naturally they frequently carry particles of feces on their hairy bodies and leave them on food. They

take food themselves only in a fluid form, all larger particles being filtered out by their proboscides. It is therefore necessary for them to dissolve or emulsify solids, such as sugar and bread, before they can partake of them. This they do by ejecting salivary fluid on to the substance, allowing it to rest there for a moment and then drawing it up again into their crops. Often they regurgitate the entire contents of their crops in the same manner. In this way a fly may convey a considerable drop of urine or liquid feces almost straight from the latrine to the mouth of man. Further they frequently defecate on to food and it has been proved that the organisms of many diseases are still virulent after several days' sojourn in the bodies of the insects. After these statements there is no need to marshal any of the indisputable proofs that these insects convey cholera, bacillary dysentery, amebiasis and the enterics.

In the absence of flies, however, none of these diseases would cease to exist thru the world, since they are all also water-borne, and insects form only one means of conveyance. Their importance varies enormously in different epidemics and may occasionally be insignificant. In modern towns, where the water supply is good, they may be entirely responsible for an outbreak. The special conditions of warfare also make them of great importance. The modern army sanitarian has generally means at hand for making water safe, but he is often not provided with any means for keeping down the fly population and may be unable to improvise any. In Gallipoli where, in spite of the very heavy fighting, the number of sick evacuated (mainly dysentery cases) almost equaled the total of all other casualties, the trouble was probably due entirely to flies, since the water

supply of the troops was brought from overseas and was above suspicion. Fortunate indeed is it that the mixed typhoid vaccine proved so excellent in practice. Without this means of prophylaxis, fly-borne enterics might have reduced the armies in the East, and possibly also in the West, to a state of pitiful impotence.

In addition to these diseases, all primarily of the alimentary tract, flies are also to some extent responsible for conveying maladies which are primarily of the exposed surfaces of the body. Such are ophthalmia and pyogenic infections. The virus is carried in a mechanical manner from the sick to the healthy, and no one who has watched the flies clustering on the eyes of children in the tropics, can doubt the important part they play in disseminating ophthalmia. Lice are known to be capable of spreading this complaint, and also favus and tropical impetigo, all in a mechanical manner, but it is doubtful whether they are of importance as carriers of these diseases.

The Dependence of Certain Diseases on Insect Vectors.—The second class of disease carriers consists of those insects and ticks which convey diseases in a manner which is not mechanical. The vectors are all blood-suckers and the maladies they carry are all primarily those of the blood stream. In the absence of their vectors these diseases would cease to exist thru the world for they are transmitted in no other natural manner. A characteristic of all these is that the virus multiplies in the bodies of the carriers and until the multiplicative phase is complete they are not normally infective. In a few cases if their bodies are crushed and inoculated while they still contain fresh infected blood they can produce infection. This is not the natural manner and is of no practical im-

portance. The list of vectors of this type is now a long one, and as it is not practicable to detail them separately here they are shown in a table, only proven cases being included. Of these diseases the ones which have caused most sickness among the troops are the three louse-borne diseases, malaria and sandfly fever.

Bloodsucking Insects and Ticks and Diseases of Man which are entirely conveyed by them.

Vectors	Disease	Causative Organism	Mode of Inoculation
Mosquitoes			
Anopheline and Culicine	Filariasis	<i>Microfilaria bancrofti</i>	Bite
Anopheline	Malaria	<i>Plasmodium spp.</i>	Bite
<i>Stegomyia fasciata</i>	Yellow Fever	Unknown	Bite
<i>Culex fatigans</i>	Dengue	Unknown	Bite
Sand flies			
<i>Phlebotomus</i>	Dengue	Unknown	Bite
<i>P. papatasi</i>	Sandfly Fever	Unknown	Bite
<i>P. verrucarum</i>	Verruga	<i>Bartonella bacilliformis</i>	Bite
Tsetse flies			
<i>Glossina palpalis</i>	Sleeping Sickness	<i>Trypanosoma gambiense</i>	Bite
<i>G. morsitans</i>	Sleeping Sickness	<i>T. rhodesiense vel brucei</i>	Bite
Horse flies			
<i>Chrysops</i>	Calabar Swellings	<i>Filaria loa</i>	Bite
Bugs			
<i>Triatomma megistus</i>	Chagas' Disease	<i>Trypanosoma cruzi</i>	Bite
Fleas			
Rat fleas especially <i>Xenopsylla cheopis</i>	Plague	<i>Bacillus pestis</i>	Bite
Lice			
Body-louse and Head-louse, <i>Pediculus</i>	Typhus	<i>Rickettsia sp. ?</i>	*
	Relapsing Fever	<i>Spirochaeta recurrentis</i>	†
	Trench Fever	<i>Rickettsia sp. ?</i>	‡
Ticks			
<i>Ornithodoros moubata</i>	Relapsing Fever (Central Africa)	<i>Spirochaeta duttoni</i>	◦
<i>Dermacentor venustus</i>	Rocky Mountain Spotted Fever	<i>Rickettsia sp. ?</i>	Bite

*Bite, or inoculation by scratching of louse excreta.

†Inoculation by scratching of crushed lice.

‡Fouling of bites or scratches with louse excreta.

◦Fouling of bites with tick excreta and gland juice.

Lice have always been the scourge of armies and probably never more so than in the Great War. In the early hectic months it was frankly impossible to pay attention to this pest. During this time on the Western Front the lice, which were present on a few of the more careless men, spread rapidly thru the whole body of troops until the large majority of the men became infested. Their cleansing became a Herculean task calling for skilled organization. The habits

of the lice, however, were not understood and all early attempts to rid the men of them failed, owing to a lack of thoroness. Men were provided with clean shirts but these quickly became infested from the other garments which were not changed. Blankets also were neglected and it was only in the last year of the war that it was

realized how important it was to pay attention to the hair on the men's bodies, on which the lice frequently lay their eggs. Further the treatment was not carried out thoroly among the units and some men always escaped it and reinfested those who had been cleansed. The disinfection stations were often far from the front and it was necessary to keep units in the fighting zone for very long periods and during this time no treatment was available.

The armies, therefore, formed an ideal ground for epidemics of typhus and relapsing fever, but fortunately these diseases never appeared on the Western Front. Had they done so the toll of sick would probably have been frightful. Another disease, however, at first unrecognized as a clinical entity, did make its appearance and immobilized temporarily large numbers of men. This was trench fever, and tho it is not usually a serious disease and never appears to have had a fatal ending, repeated attacks, especially in older men, led to chronic conditions of ill health which necessitated many

organized campaign against the louse with very beneficial results. It may seem surprising that these investigations were not carried out earlier, but it should be remembered that trench fever research cannot be done with experimental animals, as they are not susceptible, so that it was essential to work with volunteers. Had experimental animals proved susceptible, as they are to most insect-borne diseases, these results would have been obtained very early in the war.

Altho typhus and relapsing fever did not appear on the Western Front they played



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Photograph by Captain P. F. Gow, D. S. O., I. M. S.

FIG. 2. Open cone incinerator being used for the burning of manure.

of them being invalidated or relegated to the rear. In 1917, the War Office Trench Fever Committee, of which Major-General Sir David Bruce was chairman, with Major W. Byam, R. A. M. C., in charge of the working party, and the American Red Cross Committee, with Colonel R. P. Strong in charge, tackled the problem of its mode of spread. Simultaneously they proved that the louse was entirely responsible for the transmission, tho on a minor detail they disagreed. This was followed by a better

terrible havoc in the near East. Distress and hunger are the great forerunners of louse-borne diseases. When food is scarce people are no longer able to afford to buy soap and clothing. They cannot, therefore, indulge in those regular changes of garments which prove so deleterious to body-lice. They become dejected and indifferent. If it is winter they crowd together for warmth, undressing neither by night nor by day. These conditions suit the lice as they can pass freely from person to person, and

can multiply without check. When the diseases get a footing they spread so rapidly that the hospital staffs are overworked and can spare no time to cleanse the sick. The infected lice migrate in large numbers from the skin of the fever cases as they dislike the increased warmth. They also migrate at the death of their hosts. Hospitals thus become the centers of infection and most of the staffs contract the maladies. Such have

normally dwell, the population was doubled by the advent of many refugees and Russian troops. Food was scarce; transport broke down; the people were badly housed and clad in rags; fuel was almost absent and the enemy was battering at their gates. Add to this that it was a bitterly cold winter, and a more suitable ground for a typhus epidemic could not be conceived. The disease spread thru the country in a month and nearly a million people became infected. How many died from it is not known, but in Jassy as many as 500 succumbed in a day. Two hundred of the twelve hundred medical officers of the country lost their lives before warmer weather allowed the epidemic to be checked. The tale of Serbia is equally harrowing.

The multiplication of lice in armies can be prevented by careful attention to the personal hygiene of the men, and the swarms of flies can be controlled by a well organized sanitary scheme. Apart from the flies which breed in corpses in "no man's land" the armies are to a large extent responsible for what they suffer from these pests, in that they breed their own. This is not, however, the case with mosquitoes and sandflies. Like the flies they are natural denizens of the occupied zones but the occupation does not necessarily increase their numbers. The Army Sanitarian is, therefore, faced less with the formation of new breeding grounds than with the eradication of the old ones. This a far more difficult problem.

Sandflies breed in cool damp places such as the crannies of rough stone walls and in damp latrines, and no method of destroying them wholesale has yet been devised. The adults are so small that they can pass thru the meshes of all ordinary mosquito nets, and practically the only thing to do is to



FIG. 3. Primitive method of removing Lice.
Front line trench, Anzac.

been the experiences in Roumania and Serbia where typhus and relapsing fever gained so firm a hold that the results of campaigns were swayed by them.

Dr. H. Gideon Wells and Dr. R. G. Perkins of the American Red Cross Commission to Roumania have given an account of the terrible devastation these diseases wrought there. They tell us that in Moldavia, where two and a half million people

adopt the palliative method of smearing the exposed surfaces of the body with a grease, such as lanoline, combined with some essential oil such as citronella, cassia or camphor.

Mosquitoes, as is well known, have aquatic larvæ, and the various species affect different types of locality, from running streams to small collections of rain water in tins, or holes in trees. Their most important breeding grounds are swamps and pools. General Gorgas showed in the Panama Canal Zone that it is possible to reduce mosquitoes to a harmless minimum by the draining of swamps, the eradication of artificial breeding places, and the oiling of collections of water which cannot be drained. For permanent occupation these large schemes are not only justified but imperative. Time, labor and money are all available and the expenditure of these is quickly made good by the resulting benefits. To the Army Commander the problem is different. When he takes his troops into a malarious country he has no idea how long he will occupy any particular zone. The stagnant positions of the armies in the late war have been quite unprecedented. If he expects, as he should usually do, to move forward, it is easy to understand that he would resent having to provide working parties to drain or oil the swamps as they were reached. Often too, the low country where the swamps lie would be under the fire of the enemy guns and the work of sanitation would be dangerous. The most that can be expected of him, therefore, is that he will make provision for the protection of his base and the lines of communication, and that he will avoid the most insanitary places when strategy permits him to do so. To some extent the mosquitoes may be kept from biting by

means of substances repugnant to them, and by the use of mosquito nets at night. Even this is far less possible than in civilian life for so many men are of necessity exposed during the nights. The sick should be carefully protected from the insects by mosquito-proofed hospitals. When all the facts are considered it is seen that malaria is not a preventable disease in armies to the



FIG. 4. Latest type of cage fly-trap, in use at Basra.

same extent that typhus, cholera and dysentery are.'

Salonika and the neighboring countries proved a hotbed of malaria and sandfly fever during the war. Lieutenant-Colonel Castellani states that the latter disease was pandemic at times in the Serbian Army, while the British and French suffered terribly from malaria. So much has this been the case that Salonika seems likely to usurp the evil reputations of West Africa and the

Panama, and to become in its turn the "White Man's Grave."

The Localization of Insect-borne Diseases.—Travel and commerce and war have in times past played a great part in the spread of diseases. The more rapidly that transit is effected and the greater the number of travelers, by so much more will

borne diseases being established in countries in which they were not previously endemic. In the absence of suitable insect vectors no harm will of course accrue to the general population from this. Many of the more important vectors are, however, widely distributed thru the world. Few countries could boast that they are devoid of mosquitoes and of lice. Are we, therefore, to anticipate a wider distribution of malaria and filariasis, of typhus, relapsing fever and trench fever, than we have known in the past?

As stated above there is a multiplicative phase of the virus in the body of the vector and this may be completed in a few days or may occupy weeks in the different cases. The multiplication may be by division merely as in the plague bacillus in the flea, or it may be part of a complicated life cycle, in which there is a rejuvenating sexual phase, as in the parasite of malaria in the mosquito. In either case the insect which has imbibed the infecting blood may be likened to a tube of culture medium which has been inoculated with an organism. Only if the environment is suitable does the organism develop. Now the temperature of man is a constant factor and his body forms anywhere a suitable breeding ground for any disease virus, apart from questions of immunity. This is not the case with an insect whose temperature is influenced entirely by that of its environment. A climate with a relatively low temperature may, therefore, prevent the development of the organism. To quote a case in point, the sleeping sickness of South Central Africa is practically confined to the low hot country, tho the tsetse fly which conveys it ranges equally over the adjacent high cooler ground of the Tanganyika Plateau. It has been proved that while the trypanosome

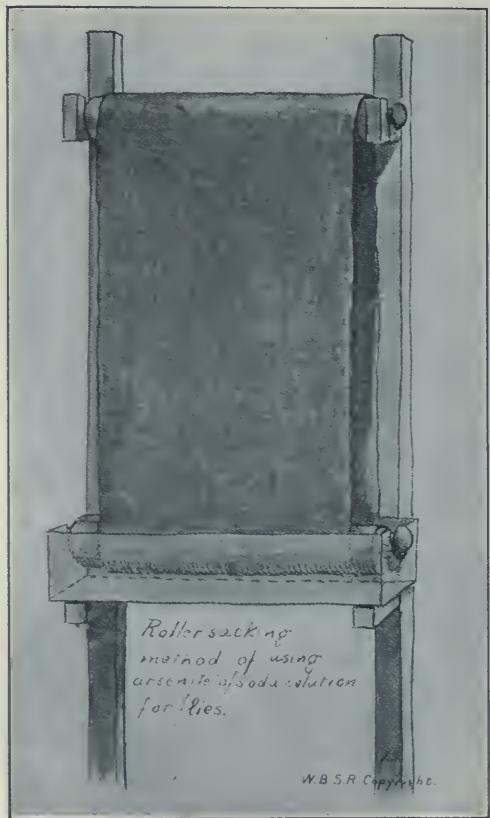


FIG. 5. The trough in which the sacking dips contains the poisoned solution.

the opportunities of spread be increased. Large numbers of men have become infected during the war with diseases which are not endemic in the countries from which they come. Many return to their homes suffering from these diseases in a chronic form. It is, therefore, as well to inquire as to what are the chances of insect-

which causes the disease can complete its development thruout the year in the low country, it can only do so during the hottest months in the cooler climate. Even in the coldest month, however, the flies become infective if they are placed in incubators at the correct temperature after they have fed on infecting blood.

A second consideration is that for an insect-borne disease to become established on new ground a considerable abundance of the vector must be present. The transmission of a parasite from animal to animal by the intervention of a third is largely a matter of chance, and unless the chances are enormously multiplied establishment is improbable. The chances in this case are as follows: *First* the insect must bite the diseased man at a time when the infecting organism is present and numerous in the peripheral blood. *Second* it must be an individual which is capable of becoming infective, since, for some reason that is not understood, only a certain percentage, and in some cases a very small percentage, of the vectors is capable of developing infection even under the most suitable circumstances. *Third* it must survive the period during which the infection is developing. *Fourth* it must then come into contact with a susceptible person after this development is complete. These chances are of course increased by the unusually large numbers of cases of certain maladies, such as malaria, which have been brought to some localities from the war zone. This disease has become temporarily established in England, as yet very locally. Before the war it was very rare and almost unrecognized as an English disease.

Perhaps the best instance to illustrate the necessity for an abundance of the vector is the case of typhus. The body-louse is pres-

ent and the head-louse is tolerably plentiful thruout the world but typhus only prevails in the cooler parts of the tropics and in temperate and cold regions, and in the latter in ordinary times only where the people are careless in their manner of living. Yet the disease is not infrequently introduced into other parts, where it may set up a little focus

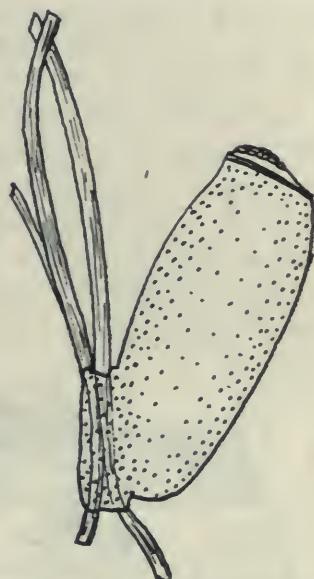


FIG. 6. Egg of body louse attached to fibres of cloth.

of infection and then die out. This has happened occasionally in Canada owing to the presence of the infection among Irish immigrants. It is only when the louse population becomes excessive that this disease can establish itself and cause an epidemic. If in America or Western Europe we became careless in our manner of living, ceased to bathe and change our under-clothing regularly, the lice would increase rapidly and we should, with certainty, suffer from widespread epidemics of typhus, as they do almost annually in Russia.

Lice do not thrive in the tropics partly because the light simple garments there worn are not well suited to them, and partly

because there the temperature between man's skin and clothing is higher than that to which they are adapted. The converse is the case with all the other insects associated with man. Temperature has a great effect on the rapidity with which an insect completes its life history, and consequently on its numbers. An insect that can pass from egg to egg stage in a week in the tropics may take several times as long in a more temperate climate, and may suspend animation for half the year in a cold one. Also, in the cooler countries the free-living insects meet with a severe check every winter and this reduces their numbers enormously. There is no such general severe check in the tropics, except where there is a prolonged dry season which may reduce the numbers

From these considerations we see that the insect-borne diseases of hot countries cannot establish themselves with any readiness in cooler climates in spite of the presence of suitable vectors. Establishment is only probable when the introduction of large numbers of infected men gives increased opportunities for the infection of the vectors, compensating to some extent for the paucity of the latter, and then only if the climatic conditions are suitable to the development of the parasite in the insect host. If establishment is effected it is likely to be only temporary.

The Control of Disease-conveying Insects in Temporary Camps.—For the prevention of insect-borne diseases in armies or among large bodies of men engaged



FIG. 7. Fragments of sewing cotton fouled by lice excreta.

of certain species. For this reason free-living insects swarm more abundantly in a hot country, and the period of their abundance is more prolonged than in temperate parts. To venture on generalizations, one may say that in every case the range of an insect-borne disease is less than that of its vector, and that this phenomenon is intimately bound up with the question of abundance.

Lastly the people in the most civilized countries come less closely into contact with the disease carriers owing to the habit of living in large and sanitary towns. The sick, from whom infection might arise, are generally segregated in hospitals and their excretions are not left exposed to the attentions of flies.

in public works, the following summary of methods may be given. The recommendations are taken from various sources with which students of the subject will be familiar. It is often difficult in Army Sanitation to give credit where credit is due.

A. Prevention of Diseases Carried by Flies.

1. Screen the sick from the flies. Disinfect or burn at once infective feces and urine.

2. Trap or poison the flies. Poisons that have been found useful are:

Sodium arsenite 2%, sugar 5%, water. On roller towel.

Sodium fluoride $\frac{1}{2}$ to 1%, sugar 5%, water. In bottle provided with a wick.

Formalin 5 to 6%, sugar 5%, clear lime-water 50%, water. In bottle provided with a wick.

3. Latrines and urinals should be fly-proof and feces should be incinerated when practicable. If open trench latrines are used they should be dug deep and dark; the contents should be oiled daily, or treated with cresol. Not more than a week after they have first been used they should be filled in, the last foot of filling should consist of oiled earth which should be stamped firm both around and over the trenches.

4. Animal dung should be conveyed some miles from the camp, or it should be tightly packed and covered with a firm layer of earth and tar oil. In dry tropical countries it may be spread in a thin layer to dry. In Palestine it was used for road making. It may even be advisable to incinerate it.

5. Food must be screened from the insects.

B. Prevention of Louse-borne Diseases.

1. The thorough and early disinfection of any cases of these, and their segregation till this has been done.

2. Those handling the sick before disinfection should wear overalls impregnated with creosote.

3. All men should have a weekly hot bath and complete change of underclothing.

4. The hair of the head and the body should be cropped short and it may be advisable to eradicate the latter.

5. Disinfection when necessary must be thorough both for the individual and the unit; neither man nor garment should escape.

6. Disinfection should be by heat which may be either wet or dry. Chambers should be tested to ensure that they are efficient.

7. Disinfection plant of a mobile character should be provided with every unit, adequate to deal with sporadic cases.

C. Prevention of Mosquito-borne Diseases.

1. Screen the sick from mosquitoes.

2. Screen the healthy from mosquitoes as far as possible by nets at night.

3. Use repellants for men necessarily exposed at night.

4. The destruction of breeding spots near places permanently occupied. Whatever policy is recommended for places temporarily occupied, that of *laissez faire* is sure to be adopted.

D. Prevention of Sandfly-borne Diseases.

Use repellants.

E. Prevention of Bubonic Plague.

1. Avoid camping in native towns.

2. Destroy rats; stop up their holes; prevent their access to waste food and so avoid encouraging their breeding.

3. Those associated with outbreaks should smear their legs and arms, outside the clothing, with a paste made from grease and naphthalene.

Conclusion.—It cannot be said that the war has taught us many new facts about the conveyance of insect-borne diseases, but it

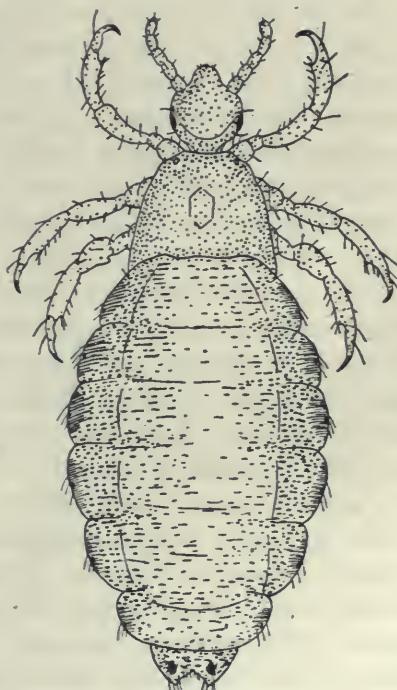


FIG. 8. Pediculus.

has marked the known facts with many bitter underlinings. Before the war we were moving in the right direction but we were not moving fast enough. We had not paid that attention to the secrets of insect life which it is necessary for us to learn if we are to combat them successfully. The insect is a machine and its movements are all responses to chemical and physical stimuli.

If we study these we shall find weak points in the chain and be able to devise scientific formula for the eradication of the pests. This can only be done, however, by careful research carried out when the guns are not throbbing in our ears. Wide rules of thumb are not what are wanted. The weak point of one mosquito may be the strong point of another. Had detailed researches been carried out as soon as the danger of these disease carriers had been proved, vast suffering could have been prevented during the last few years and many lives would have been saved. The writer would urge a plan for a detailed study of every insect which attacks man or haunts his food. The list of insect vectors of disease is not yet completed and it may still be proved that the louse, the human flea, and the bed-bug are responsible for some of our commonest ailments.

At recent meetings of the Society of Tropical Medicine and Hygiene, in London, Professor W. J. R. Simpson and Lieutenant-Colonel A. Balfour voiced the feeling that has been felt by many, that sanitation should receive more adequate attention in armies than it has done in the past. The Army Sanitarian should be no more compelled to improvise his requisites than the Hospital Staffs should be to improvise their beds and dressings. With the earliest arrivals of expeditionary forces should be representatives of the Sanitary Staffs who should determine by a rapid survey of the natives what diseases the troops are likely to meet and requisition their supplies accordingly. Until this is done the endemic diseases of an occupied zone will always obtain a strong foothold in the armies, and what might have been the simple problem of prevention becomes the much more difficult problem of cure, and the Commander, with his troops

heavily depleted by sickness, is unable to provide working parties for the necessary schemes of sanitation.

[NOTE.—The photographs used in illustrating this article are reproduced by the kind permission of Lieutenant-Colonel Andrew Balfour, C. M. G., M. D., Director-in-chief of the Wellcome Bureau of Scientific Research, and are selected from the unique series which he made in many fighting zones. They were originally used by him to illustrate his paper "Sanitary and Insanitary Makeshifts in the Eastern War Areas," read before the Society of Tropical Medicine and Hygiene in London, November, 1918.]

HYSTERIA AND THE SURGICAL SPECIALTIES IN WAR AND PEACE

BY

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Specialists have in the past been too much inclined to work in water-tight compartments. The neurologist has confined his attention too exclusively to organic nervous diseases and those neuroses which lie so obviously within his province that the patient comes to him on his own initiative. On the other hand patients suffering from neuroses of the larynx, ear, eye and bladder and from traumatic hysterical contractures, which give rise to deformities, naturally look for help from the laryngologist, otologic, ophthalmologic, genitourinary and orthopedic specialist respectively, so that these conditions tend to be studied too much from one point of view.

For over two years I have worked with a number of keen and skilled

assistants,¹ in a hospital devoted entirely to the war neuroses. Medical officers in charge of general and special departments of other hospitals have with increasing frequency sent us cases which appeared to be of functional origin, and we have therefore had an almost unique opportunity of investigating and treating a great variety of hysterical conditions, which are comparatively rarely seen by neurologists in civil life. In this paper I shall briefly describe a few of the more common neuroses, which are of special interest to other specialists, concluding with a note about certain traumatic neuroses, which are still unfortunately too often regarded as organic and requiring orthopedic treatment.

Laryngology.—Hysterical aphonia has been very common in soldiers. It was most frequently a sequel of the laryngitis produced by gassing, but it also followed catarhal laryngitis, the emotion of fear and exhaustion. The pain caused by attempting to speak when laryngitis is present makes the patient whisper, but if this is prolonged for more than three or four weeks the aphonia is almost invariably hysterical. It can be diagnosed without a laryngologic examination, and I have noticed that the slight changes often found in the cords as a sequel of some acute inflammatory condition by expert laryngologists have led them to regard the condition as organic, and therefore not amenable to psychotherapy. We have seen many cases in which prolonged intralaryngeal treatment had proved useless, but which were cured at a single sitting by explanation and persuasion. Each of a hundred consecutive cases of aphonia at Seale Hayne Hos-

pital was cured at a single sitting; the 101st case was recognized to be organic by the timbre of the voice, a view which was confirmed when one cord was found to be paralyzed and an aneurysm of the aorta was discovered. We cured all our cases by explanation and persuasion, and have not required to use electricity, general anesthesia or hypnotism for nearly a year. Mutism is of course always hysterical and easily cured by psychotherapy.

We now believe that stammering in civilians as well as soldiers is hysterical and should be curable by psychotherapy with far greater rapidity than we formerly believed to be possible. Most of our cases during the last nine months have been cured at a single sitting, and recently Major J. F. Venables taught two soldiers, each of whom had been almost inarticulate from stammering since early childhood to talk fluently in less than an hour.

Otology.—In order to hear, it is necessary to listen, listening being as active a process as moving. This must have an anatomical basis; perhaps the dendrites of the nerve cells are thrown out at each cell-station in the auditory tract when an individual listens and are withdrawn when he is inattentive. If a man has become temporarily deaf owing to a loud explosion or continuous gun-fire, he may become so convinced that he will never hear again that he ceases to listen. This is the origin of hysterical deafness. It is consequently a true nerve deafness; the patient's voice alters like that of a deaf man, he may spontaneously learn lip-reading and in severe cases the auditory-motor reflex, in which the pupils dilate and eyelids blink in response to loud noises, may disappear owing to the blocking produced at the lower as well as the higher auditory centers by the with-

¹ Major J. L. M. Symns, Major J. F. Venables, Capt. W. R. Reynell, Capt. S. H. Wilkinson, Capt. G. McGregor, Capt. A. W. Gill, Capt. C. H. Ripman, Capt. R. G. Gordon, Capt. A. Robin and Capt. J. W. Moore.

drawal of the dentrites when inattention is extreme. The only signs of any value are those which indicate vestibular disorder, as this never occurs in hysteria, and an organic lesion which is sufficiently severe to cause complete deafness would almost certainly involve the vestibule as well as the cochlea or the vestibular nerve as well as the cochlear nerve. All cases of concussion deafness, even if the drums are ruptured, are, I believe, hysterical, and recovery occurs as soon as the patient is taught to listen once more, the auditory-motor reflexes reappearing at the same time.

I believe that the question of attention is of very great importance and many patients with partial deafness from otosclerosis or other causes can be greatly benefited by being taught to listen, and to use whatever power of hearing they still possess to the greatest advantage.

Ophthalmology.—Vision like hearing is an active process, but it involves a motor as well as a psychical act. Not only has the individual to look but he has also to open his eyes by his levator palpebrae muscles and to converge by means of his extensic muscles according to the distance of the object he wishes to see.

Conjunctivitis caused by gassing or sand thrown up by the wind or by an explosion gives rise to photophobia. The patient therefore does not use his levator palpebrae superioris at all, or if ever he attempts to open his eyes a reflex protective spasm of his orbicularis palpebrarum occurs. The voluntary inhibition of the levator may be perpetuated as hysterical ptosis, and the reflex spasm of the orbicularis as hysterical blepharospasm, if, when the inflammation has disappeared, the patient continues to keep his eyes closed. On now teaching the patient to contract his levator and to relax

his orbicularis, it is often found that he sees indistinctly when his eyes open and a convergent squint may be present. The latter is easily overcome; the indistinct vision is due to hysterical paralysis or spasm of accommodation, and disappears on teaching the patient to accommodate normally. In severer cases the patient is completely blind, this psychical blindness being due to the fact that the patient does not look, and is thus strictly analogous to hysterical deafness. With psychotherapy the patient can be taught to look, and normal vision returns. In a case of absolutely complete blindness of four and a half years' duration following the explosion of a shell, the light reflex had disappeared, but reappeared with the recovery of vision immediately the patient was taught to look. This loss of the pupil reflex to light and the much more frequent loss of the blink reflex, when an object rapidly approaches the eye, are doubtless due to the same kind of dendritic retraction due to inattention, as I have described as occurring when the auditory-motor reflex is lost in hysterical deafness.

It has generally been taught that homonymous hemianopia is always organic. But we have found hemianopia and other homonymous defects of vision resulting from wounds in the occipital region, which were due to the hysterical perpetuation of a condition which was originally organic. The loss of function having been largely due to concussion and other transient changes, vision might have returned spontaneously, but the individual having become temporarily blind in one or more quadrants of his fields of vision had ceased to look in the corresponding directions and re-education was required to teach him to do so, the rapid recovery which followed this method

of treatment proving that the condition was really hysterical.

Deficient vision may result from continuous hysterical spasm of accommodation. In one case of this kind the spasm had persisted for three years before it was recognized, and the very deficient vision which it caused could only be partially overcome by suitable lenses. The onset was sudden, the patient having seen normally until he was blown up. Well marked myopic crescents were present in both eyes, presumably as a result of the mechanical longitudinal strain caused by the concentrated pressure due to ciliary spasm. The nyopia disappeared when the patient was taught to relax his ciliary muscles.

Genitourinary Disorders.—It is interesting to find that prolonged sexual abstinence diminishes rather than increases desire, and that many married soldiers found that they were impotent on returning home after being at the front for two or three years. In some cases exhaustion was partially responsible for this. Rest, encouragement and in severe cases suggestion under hypnosis were invariably followed by recovery.

Incontinence of urine was very common in soldiers; it was almost always hysterical and rapidly responded to psychotherapy. I believe that the enuresis of children must be hysterical, as many of these cases were simply relapses under the strain of active service of a condition which had been present in childhood, and in a few cases the incontinence had never ceased, but was none the less cured by explanation, persuasion and re-education, even if it was diurnal as well as nocturnal.

The incontinence which follows spinal wounds and spinal concussion has always been regarded as organic, but we have had

several cases which were cured by psychotherapy after lasting many months or even a year or two. These were generally associated with paraplegia, which was similarly due to the hysterical perpetuation of a condition originally organic.

Orthopedics.—The paralyses and contractures following minor wounds, contusions and sprains of the arm and leg, which Babinski and Froment regard as reflex in origin, owing to their failure to cure them by psychotherapy and to their association with vasomotor and trophic changes are, I am convinced, really hysterical. Many thousands of soldiers and pensioners are still receiving treatment by massage and electricity in orthopedic hospitals, altho they could all be rapidly cured by psychotherapy. In a series of 100 consecutive cases treated at Seale Hayne Hospital, the average duration of symptoms before admission was 11 months, but 94 were cured at a single sitting of an average length of 55 minutes, the remaining six requiring various periods up to three weeks. Major J. F. Venables recently cured a man with a completely useless hand, dating from a wound received in October, 1914, in just under five minutes. Disuse leads to deficient circulation, with cold, blue and sometimes edematous extremities, and this in turn gives rise to such trophic changes as atrophy of the subcutaneous tissues and muscles, decalcification of bone and the production of thin and brittle nails. Restoration of function immediately restores the circulation, and this leads to the gradual disappearance of the trophic disturbances.

We have often noticed that when a man is rapidly cured of a contracture by psychotherapy, he continues to keep his limb in the same abnormal position as before, altho he is capable of moving it without any dif-

ficulty in every direction. I believe that this is due to the development of a new "postural length." If AB in diagram I represents the normal length of a muscle when at rest, it can shorten to AC on active contraction and lengthen to AD on active relaxation, relaxation being just as active a process as contraction. All muscles adopt an intermediate length of this kind, the exact length depending upon the habitual posture of the limb. Thus the fingers are slightly flexed when at rest, both during consciousness and during sleep and anesthesia. In order to extend them the extensors shorten

the abnormal posture remains during sleep under anesthesia as well as when the patient is awake. It is in no sense hysterical, but is organic, altho the structural condition upon which it depends ought never to be permanent. As soon as complete mobility is restored, the patient should be taught to keep his limb in the normal posture by an effort of will throughout the day and he should walk up and down in front of a looking-glass to see that he maintains it. In the course of two or three days this training results in a return to the normal postural length, and the patient then no



Diagram I

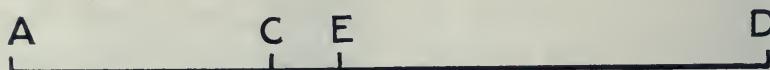


Diagram II

and the flexors lengthen and in order to flex them the flexors shorten and the extensors lengthen. If as a result of the continued contraction of one group of muscles, whether as a result of organic disease or hysteria, a new posture is assumed for a long period, the anatomical structure of the muscle fibers becomes altered, so that the postural length of the contracted muscles is abnormally short (e. g. AE in diagram II) and that of the opposing muscles is abnormally long. When recovery takes place, even if this occurs almost instantaneously in an hysterical case, the muscle AE can contract to AC and relax to AD, but it always returns to AE when at rest. Consequently

longer requires to pay any attention to his posture.

Orthopedic surgeons have long known the importance of using splints to maintain a good posture in cases of nerve injury. It has generally been thought that this has the object of preventing the paralysed muscles being overstretched, as their contractility might otherwise become impaired. In all probability, however, the splint really acts by maintaining the normal postural length of both the paralyzed and opposing muscles. That this is the more likely explanation is shown by the improved results obtained recently in cases of dropped wrist due to musculo-spiral paralysis, the extreme hyper-

extension formerly used having been replaced by moderate extension, which keeps the postural length of the muscles normal instead of increasing that of the flexors and reducing that of the extensors.

The abnormal postures and gaits, which are often adopted after a painful wound has completely healed, are probably also due to the development of abnormal postural lengths of muscles, whilst the position of greatest comfort was maintained before the wound had healed. The condition is often described as hysterical, but it is not produced by suggestion and is really organic, tho easily curable by re-education.

Surgery of the Nervous System.— Nothing is more likely than organic disease to suggest a functional disorder. Consequently it is very common indeed to find the hemiplegia and paraplegia caused by injury of the brain and spinal cord and the paralysis caused by wounds of peripheral nerves perpetuated as hysterical symptoms after the original organic lesion has either completely disappeared or improved to such an extent that it can be responsible only for a small part of the incapacity. But just as the physical signs of such organic diseases as tabes and disseminated sclerosis may precede the development of symptoms, so may the physical signs persist when the organic lesion has cleared up to such an extent that it no longer causes any incapacity. We may thus have hysterical paralysis following organic paralysis, which it simulates in every detail, associated with organic physical signs. Diagnosis is then impossible except by seeing how much improvement follows psychotherapy. By this means we have succeeded in curing many cases of apparently organic paralysis, but the persistence of organic physical signs has shown that there

was some slight residue of the original lesion still present.

Other symptoms resulting from injuries of the nervous system may be perpetuated in a similar manner. Thus anesthesia following any injury to a peripheral nerve, localized to the exact area of the skin supplied by the latter, and sometimes actually leading to accidental burns, was found in several cases to be hysterical by its disappearance—often within a few minutes—under psychotherapy. Persistent headache due to concussion, whether caused by direct injury or a shell explosion, is often if not always, of the same nature, as it disappears with psychotherapy when all other forms of treatment have proved useless. Major J. F. Venables has recently cured two cases of constant vomiting following concussion by a single psychotherapeutic conversation, neither patient vomiting again, altho they were given a full diet after having been unable to keep down the whole of a single meal even of peptonized milk, for over a year.

Hysterical fits are, I believe, much more common than is generally believed, and they may very closely simulate epilepsy. Such symptoms as passing urine and biting the tongue may occur, especially in a man who has at one time suffered from true epilepsy, as nothing is more likely to suggest the occurrence of fits in an emotional individual during times of stress than the memory of true fits in the past. The fits will resemble the early ones in those features which the patient remembers or with which he is familiar from what his relatives have told him. I have seen a small number of cases of Jacksonian epilepsy following head injuries which were perpetuated as hysterical fits; they resembled the original attacks in every detail, but persisted when the pre-

vious cause was no longer operative, and, being hysterical, they were cured by psychotherapy.

In conclusion, I hope that these notes will show the need of closer cooperation in the future between the neurologist and other specialists. I hope myself to share one of the clinical assistants in my Neurologic Clinic at Guy's Hospital with each of my specialist colleagues. Above all this is wanted in connection with orthopedics, as many hundreds of unnecessary operations are performed and many thousands of hours are spent in undergoing treatment by massage and electricity which would be rendered unnecessary if all orthopedic cases were first seen in consultation with a neurologist, or if all orthopedic surgeons regarded a neurologic training and especially a training in psychotherapy as an essential part of their education.

THE WORK OF AN ORTHOPEDIC CENTER IN MACEDONIA.

BY

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The work done by the units of the Scottish Women's Hospitals in France and Serbia is now known thruout the allied world and its origin in far away Edinburgh needs no description. The idea of the establishing of such hospitals, staffed and officered entirely by women doctors, nurses, cooks, chauffeurs and orderlies, originated in the brain of Dr. Elsie Inglis, who herself died as the result of her devotion to the wounded in Serbia and the Jugo-Slavs in Russia. The organization has increased in size since its inception and the headquarters in Edin-

burgh (2 St. Andrew's Square), with its branch in London, are centers of unceasing activity and enthusiasm.

These hospitals consist of units from about 200 to 500 beds, and are gifted to the armies of France and Serbia. They are entirely supported by voluntary contributions.

One important unit has been working at the Abbaye de Royaumont near Paris since 1914 under Dr. Frances Ivens. Another is at Sallanches in France for the treatment of Serbians suffering from tuberculosis. One is taking care of the Serbian refugees in Corsica since their retreat from Serbia. Three units were given to the Royal Serbian Army and worked thru the raging epidemic of typhus. Their energies were only brought to an end by the retreat of the army. Some of the staff of these accompanied the Serbian army over the snow-clad mountains of Albania to a haven in the island of Corfu. Others were taken prisoners and remained behind to be eventually repatriated thru Austria and Switzerland.

At the present moment there are three hospital units working in Serbia and Macedonia, one at Velles near Uskub in Serbia, where the hospital is being taxed to its utmost capacity in the admission of sick and wounded. This unit had been at work at Ostrovo since 1916, and owes its origin mainly to the generosity of American contributions. It is known as the "American Unit" and works directly under the Royal Serbian Army. Dr. Isobel Emslie is its chief medical officer.

Another unit, after working with the Jugo-Slav divisions of the Serbian army in Russia and Roumania, has been working at Dragomananci, but is now on its way to Serajevo to extend its activities among the



FIG. 1. Group of Matron, Sisters and Masseuses.



FIG. 2. Entrance Gate.



FIG. 3. The operating room for aseptic work. Sister in charge.



FIG. 4. Dental Department. Patient is seen wearing an orthopedic foot.



FIG. 5. A corner of the Mechano-Therapy Hut.



FIG. 6. Orthopedic Ward.

The upright poles are for mosquito nets. The electric light is run by an engine in the camp belonging to the S. W. H.

Jugo-Slavs now collected there. To it is attached a large motor ambulance transport column driven entirely by women. This hospital is known as the "Elsie Inglis" unit and is supplied by the London Committee of the S. W. H. A smaller transport column is also at work in Northern Serbia. It followed the Serbian army in its glorious advance thru the country. In several towns

staffed and equipped for 200 beds, the original expense of outlay being defrayed by the colleges of Girton and Newnham, Cambridge. It continued work in France until the autumn, when an order was received from the French War office to evacuate the wounded and proceed with the hospital to Salonica, to join the French Expeditionary Force sent out to the aid of Serbia, on ac-



FIG. 7. Staff Tents.

the Scottish women drivers were among the first to be welcomed by the population.

The work of the unit stationed at Salonica for three years is the subject of the present paper. It began its existence in France in the spring of 1915, working as a military hospital under the French War Office at Troyes in Champagne. The hospital was entirely under canvas and was

count of hostilities having commenced with Bulgaria.

The staff, altho regretting their departure from France, where the work with the army officials had been so harmonious, fully realized the importance of the unique honor of a foreign hospital being chosen to accompany an expeditionary force. The tents were taken down, the equipment

packed, and the hospital, which included on its staff as administrator, Mrs. Harley, the sister of Lord French, set out for Salonica, which it reached after a somewhat protracted and eventful voyage. On arrival, orders were given to proceed to Gievgueli in Southern Serbia, where the French were establishing their hospital base. The wounded were pouring in in great numbers,

cially observed in the Senegalese and other black troops who were unaccustomed to the northern cold, coming from their own sunny lands. The bravery of the French was magnificent, their endurance of pain was remarkable. Thru all their suffering their one thought seemed to be "Vive la France." Away, here among the Balkan hills in a little corner was that group of



FIG. 8. Exercise Ground.

and soon the hospital was busily employed in doing everything possible for their comfort. During this time an unusual blizzard was spreading over the Balkans and Gallipoli Peninsula and the soldiers not only had to endure the wounds of war but were almost frozen in the trenches filled with snow. Many cases were admitted of frozen feet suffering great agony. This was spe-

hospitals with their wounded. Close by on a hill was the cemetery, the dead daily increasing in their numbers. Behind were the ridges of Serbian and Bulgarian snow-covered mountains, and thru all, the booming of the guns coming nearer day by day. Soon it was realized that the Serbian army was in retreat and that the Allied Expeditionary Forces were to withdraw. Orders

were given to send the wounded as quickly as possible to Salonica, and the hospitals to follow with their staff immediately after.

Serbia was completely invaded by her enemies, her armies had been cut off. Nothing seemed to be left to hope for. Those brave Serbian soldiers were leaving behind them their beloved country, their

the hospital was overcrowded, even tho it had increased its capacity to 300 beds. In autumn, on the return of the Serbian army from Corfu, hostilities were again commenced at the front, and during the whole winter the hospital was full of wounded. French, Serbians, Russians, Albanians and Senegalese were admitted as the French



FIG. 9. Part of panorama showing Scottish Women's Hospitals filling in foreground. Behind on lower ground are French Hospitals and on rising ground are Greek Camps. To left are seen the old battlements of the Turkish quarter of the City.

homes, not knowing if ever they would be able to return. The Scottish hospital set up its tents in Salonica, and has been at work there ever since, constantly employed in work for the French army. During the summer of 1916, when the great heat and unexpected epidemic of malaria and dysentery almost threw the troops out of action,

authorities at that time were responsible for the care of these nationalities.

In summer of 1917, it was felt by the staff of the hospital that a hospital for the treatment of disabled soldiers was very much required in Macedonia, and that given the necessary equipment such a department should be inaugurated. It was felt that the

French soldier invalided home had ample opportunities for orthopedic treatment in his own country, but that the Serbian, who desired to remain as near his country as possible, should be given the opportunity of such treatment to counteract the disablement of war.

Accordingly, in consultation with the

Orthopedic Centre."

Wooden huts were erected and marquees with smaller tents and the work was begun. The services of highly trained masseuses from orthopedic hospitals in Britain were secured and appliances were set up.

The orthopedic center mainly consists of a group of huts: one divided up into operat-



FIG. 10. See Figure 9. Part of panorama showing Scottish Women's Hospitals.

French military authorities, the Edinburgh Committee gave permission to establish an orthopedic department in the hospital, the French general being desirous that 200 beds should be added to the 300 already existing. This was accordingly done and the hospital was moved to a more extensive and higher site. The equipment for the new department was supplied by a gift from India and it is known as "The Calcutta

ing and sterilizing rooms, X-rays and a dental department. Another hut is given up to the massage department with a very fully equipped electrical outfit, consisting of various colored radiant heat baths, hot air, vibrators, for the treatment of various joint and nerve affections. Galvanic and faradic electrical machines for the re-education of disused muscles are also in this department. Numerous appliances for the exercise of

limbs, such as rowing machines, wheels, pulleys, bars and bicycles are also employed. Medicated hot water baths are used as a preliminary to such treatment. On its way from Scotland is a large hydrotherapeutic hut for the use of the hospital, having the most up-to-date baths obtainable, such as whirlpool and aerated baths, douches, sprays and pools. Classes in gymnastic exercises are also held.

When improved to a certain extent with treatment, the patients are gradually put into the workshops and there taught the re-education of their limbs in coordination with their mind. In these huts or tents are carried out cigarette-rolling, book-binding, embroidery, furniture repairing and making. In the carpenters' workshops splints are made and other surgical appliances. The shoemakers are taught to make orthopedic boots and supports to suit disablements of the lower limbs. There are no expert workmen for teaching purposes, the men work entirely under the supervision and control of the women members of the staff. These workshops also teach the patients to take an interest in life, and are a means of showing them that many occupations are open to them when they return to civil life.

Altho mainly intended for the Serbian soldiers, the orthopedic department since its inception has been largely used by the French wounded, and numerous patients are sent for special treatment from the various surrounding hospitals. Outdoor officer patients are treated, and these have included among their number a number of British army officials who have always shown such sympathy and unfailing kindness towards the hospital and its staff of British women.

The hospital has done its work for over

three and a half years mainly under canvas, and has had the simplest equipment possible with efficiency. The surgical and medical work has been left entirely to the staff of women doctors. The entire administration and discipline are under control of the staff and no French official has been in residence. The hospital is the only orthopedic one of its kind in the Balkans and it has demonstrated the need for others to follow. There are large numbers of Serbian men disabled by the war, and these require remedial treatment. The need for such work is proved by the fact that the hospital, now at the end of the war, is developing its activities more than ever. One has only to see the poor disabled men undergoing their treatment, and to see them on leaving, restored to comparative health and fitness, to realize the value of such work. The Serbian nation with its gallant army which fought with its back to the wall to defend its country only acknowledged defeat when overwhelmed by misfortunes, an army which has suffered as no other army has in its retreat across the mountains, its men dying in their thousands from cold and hunger and with the knowledge that those they left behind would have to endure privations and torture almost unspeakable in their intensity and cruelty. Men, who to the world apparently remained inactive for months on the Macedonian front, enduring the mental misery of exiles, almost afraid to go back to the homes which they feared to find empty or dishonored, but when the command came to advance, fought and carried themselves with a bravery which won the admiration of every member of the allied armies cooperating with them. Their country has been won back by their blood and thru blinding tears. Those who have cared for the wounded Serbian sol-

diers realize their nobility of character, their absolute discipline and their gratitude for all that is done for them. They have to be made to realize that there are no unfit, but that an occupation can be found to suit each individual disablement. The Scottish Women's Hospital for orthopedic work is only a beginning, others must follow as the necessity for such is great.

Salonica.

THE INFLUENCE OF PENSION OR COMPENSATION ADMINISTRATION ON THE REHABILITATION OF DISABLED SOLDIERS.

BY

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When the pioneer efforts were made in Europe to rehabilitate disabled soldiers and return them to capacity for self-support, the first difficulty encountered was the fear on the part of the men that an increase of earning power would entail reduction or cancellation of their pensions.

The same fear on the part of injured industrial workers, that the scale of their workmen's compensation will be adversely affected by return to work, keeps idle many men who could return to a job either with or without special training or "re-education." It has been found, for example, in one re-educational school for civilian cripples that most of the compensation cases apply for training the day the compensation expires—after a long and most undesirable period of idleness.

In the case of military pensions the deci-

sion as to whether earning power should affect pension has usually been negative—and therefore sound. There has been no such clear-cut decision on this point in the administration of compensation for industrial disability. Altho the present study deals only with the military pensions practice, there are to be deducted from the data presented many principles which should find helpful application in the field of workmen's compensation.

Because the fundamental object of national pensions has been to compensate a man for a loss in effectiveness and capability due to active service, it has been a natural deduction that the amount of the pension should be based on the actual reduction in earning power; and that where an injured man has been able to return to employment in which he earns as much or more than he did before the injury, no prejudice to effectiveness has ensued, and no pension, therefore, should be paid.

On the argument that the country should not be expected to pay compensation for an economic handicap when no economic handicap exists, the practice of making pension dependent on earning power might be regarded as sound, were it not for a vital social consideration. A man returns from the war with health or strength impaired, and is awarded a pension based on the average expectation of loss of earning power of a man in his physical condition. Being a man of character and ambition, however, he is not content to remain idle, so he seeks assiduously for a job which he can fill, finds it, and starts to work. Upon making report of his earnings—tho his state of health be no better, and perhaps worse—his pension is suspended. It is certain that an average man who has once lost his compensation on ac-

count of getting a job will never make the same mistake again.

Yet it is infinitely to the advantage of the community that the idle man shall be set to work, that the inactive consumer be made a producer. The loafer in the making is a much greater liability to the community than the obligation for the pension payments. This consideration has led, in experience, to the almost universal decision that pension should not be influenced adversely by a man's earnings; that the injured ex-service man should receive every encouragement to return to employment.

There is another argument in favor of this decision: The impaired physical condition always involves personal inconvenience, and usually imposes limitations on range of activity in both work and play. This is a distinct loss to the individual, and it seems fair that the government should pay compensation on this basis alone. The man who has developed active tuberculosis in the military service can never again be quite free from the bondage of a hundred precautions. Life will not mean quite as much as it did before. The soldier who has lost one leg thru amputation will forever be subject to the inconvenience of his stump chafing in hot weather, and he will never again be able to play a game of tennis, altho he may be able to attain a weekly wage as great as that earned prior to enlistment.

With respect to cases of specific permanent disability, whether partial or total, there has been practical unanimity of decision among the belligerent nations that compensation award should be fixed and irrevocable, and not influenced by earnings or earning power. The specific disabilities are typified by amputations, blindness, etc. The ruling of the United States has been clear

and satisfactory with respect to such disabilities.

With respect to non-specific disabilities the decision has not followed quite the same rule, and compensation has been canceled in some cases when it was shown the claimant had returned to work. Among the non-specific disabilities are scores of a medical nature, typically represented by phthisis, cardiac insufficiency, kidney difficulties, etc. Should these disabilities also be compensated on the basis of medical evidence alone, without respect to the current earnings of the claimant? It is possible that the experience of other nations may provide evidence helpful to a wise determination on this point.

As will be evident from the subjoined memoranda on the pensions practice of our Allies and Germany, there has been substantially complete unanimity of decision that earning should have influence on the award in cases of non-specific as well as in cases of specific disabilities.

Most of the countries learned early that such a ruling must be made if there were to be any degree of success with the programs of re-education looking toward returning the injured men as self-supporting members of the community. Great Britain altered her practice later than the others, but meanwhile developed a most convincing demonstration of the necessity of the change. And once the important decision was made, there was energetic educational effort, thru posters, leaflets, press articles, and the like, to bring the ruling to the knowledge of the men in military and naval service.

The general consensus of experience has, in effect, developed the principle that pensions or compensation authorities have no concern whatever in the earnings of the

claimant, and that the amount of the individual's earnings should not even be asked. The corollary to this principle is, of course, that the award should be based wholly on medical or surgical record or examination.

The following memoranda on the practice of several countries have been prepared in the Research Department of the Red Cross Institute for Crippled and Disabled Men.¹ The source of the data is in all instances indicated by footnotes.

FRANCE.

Up to the passage of the new French pension law in March of this year, a French soldier, disabled as a result of service, received either a pension or a gratuity. Pensions were governed by the law of 1831 and were granted only for a disability which was adjudged incurable and of a certain degree of gravity.² Indemnities for lesser disabilities and for disabilities of any degree which could not be definitely pronounced incurable were governed by the decree of March 24, 1915, and were called renewable gratuities. By this decree renewable gratuities were divided into eight classes, corresponding to proportional decreasing reductions of the normal working capacity. Total abolition of the working capacity, 80 per cent. reduction, or 60 per cent. reduction, not, however, incurable, entitled a man to a gratuity of the first, second, or third class, respectively. Reductions of from 50 to 10 per cent., incurable or not, entitled to gratuities of the fourth to the eighth class.³ The disability had to occasion at least 10 per cent. reduction of the working capacity to be entitled to any gratuity; if it occasioned 60 per cent. or over, and was incurable, it was entitled to a pension.

The amounts of the different classes of gratuities were fixed by the same decree, modified by the decree of December 29, 1917. They ranged for a private soldier from 100 francs a year for a 10 per cent. disability to 1,200 francs for total disability. For the same degree of disability they conformed to the scale of pensions.

In the new pension law the word gratuity is replaced by temporary pension, and the

only distinction between the permanent pension and the temporary pension is in the matter of incurability. A man is entitled to a permanent pension "when the disability caused by the wound or sickness is recognized to be incurable"; to a temporary pension when the disability is not recognized to be incurable.⁴ This new law also abolishes the eight classes of gratuities and the old pension scale, and grades permanent and temporary pensions by a scale of disability increasing by fives from 10 to 100 per cent.⁵ The amounts range, for a private, from 240 to 2,400 francs a year.

The amount of the gratuity, now called the temporary pension, has depended wholly upon the man's physical condition, that is, upon the gravity of his injury, as determined by the medical examiners of the Discharge Commission. It has been the duty of the examiners to pronounce on the origin, gravity, and curability of the disability, and on the basis of the facts to propose the man for a certain pension or gratuity.⁶ In deciding what reduction of the working capacity is occasioned by a given condition, or in other words what should be the amount of the indemnity, the medical examiners were first instructed (*Instruction du 20 avril 1915*) to refer to the figures established by the application of the Workmen's Compensation law.⁷ It was soon seen, however, that such instructions were insufficient to secure uniformity in the estimation of disabilities; men with the same injuries were differently rated by different physicians. To avoid the injustice and the inevitable demands for revision resulting from this situation, the *Commission Consultative Médicale* of the War Department drew up a table (*Guide-Barème des Invalidités*) which listed in detail the different injuries and indicated the corresponding reduction of working capacity. The object, as the introduction to the tables states, was not to impose upon the examining physicians a fixed evaluation of each injury but to furnish, as the name implied, a guide which would contribute toward securing uniformity.

Diseases which may have been contracted or aggravated by reason of service are included in the table, but the French practice in the early days of the war was to consider disability caused by disease non-attributable and to discharge such cases

without pension. The new law makes sickness attributable unless the state can prove the contrary.⁸ A new *Guide-Barème* has been issued to go with the new pension law.

The renewable gratuity was granted for two years, and at the end of that time the recipient was required to appear before the Discharge Commission and to undergo a new medical examination. On the basis of the findings of the doctors the gratuity was then renewed for another two years—at the same rate if there had been no change in the condition, at a higher rate if the condition were worse, at a lower rate if it had improved. If the disability was recognized to be incurable, the gratuity was converted into a life pension; in case of a cure, it was discontinued entirely.⁹

The temporary pension of the new law is similarly granted and reviewed, but after four years at the most the condition of the pensioner is to be considered permanent and the temporary pension either converted into a permanent one or discontinued. The new law also provides that "any recipient of a temporary pension who experiences a new complication or an aggravation of his disability can, without waiting for the expiration of the two-year period, send in a demand for revision which must be acted upon within two months."¹⁰

It is apparent, therefore, that the amount of the gratuity or temporary pension is not, either when it is first granted or when it is renewed, conditioned by what the man does or will earn. On this point M. Alexandre Lefas, deputy from Ille-et-Vilaine, in a report on French pensions presented to the Inter-Allied Conference in London in May of 1918, is specific and clear. He says: "Note that in virtue of the military laws the pension or gratuity due a disabled man is calculated solely on the basis of his disability and rank, without consideration of what he may still earn by working."¹¹ Speaking before the Conference, M. Lefas added, "We have a medical table which fixes the rate of disability according to the wound. As a matter of fact, what is considered is not the incapacity for work, for the disability pension is independent of the wages the man may earn by working and should be the same for all men of the same rank who have the same wound."¹²

The fear that the pension would be reduced if the earning capacity were increased

operated, however, during the early years of the war, to deter many disabled soldiers from taking re-educational training, and it was necessary for the government to combat this fear by repeated announcement of the real facts. A notice prepared by the *Office National des Mutilés et Réformés de la Guerre* with the object of inducing more men to enter the re-educational schools, and signed by the two presidents of the Office, the Minister of Labor and the Under-Secretary of State for the Health Service, states that "whatever their trade or their earnings, in no case will the pension of wounded soldiers be diminished [thru re-education], even if they earn more than before being wounded."¹³ Another notice on conditions of admission into vocational schools, issued by the Departmental Committees and based on circulars of the Ministers of War and the Interior, says: "The amount of the pension depends solely on the medical declaration of disability. In no case can it be modified by reason of the fact that the beneficiary has been re-educated. The amount of the gratuity may always be revised, in accordance with the functional condition, whether the soldier is re-educated or not."¹⁴ This principle was finally made law by being incorporated in the Re-educational Act of January 2, 1918, article eight of which reads: "In no case can the amount of the pension be reduced because of vocational re-education or readaptation to work."¹⁵

GREAT BRITAIN.

Previous to the issuance of the Royal Warrant of 1917, British pensions were based upon the decrease in earning capacity caused by the disablement.¹⁶ Upon his discharge a disabled soldier appeared before a medical board which made a rough estimate of his decreased earning capacity and awarded a corresponding temporary pension. After a time, perhaps in six months, he would be re-examined, and if his earning power had been increased thru training or he had been able to secure remunerative employment, his pension might be decreased.

The new Warrant discarded this principle and based the amount of the pension entirely upon the soldier's rank and the degree of his physical impairment.¹⁷ In a schedule attached to the Warrant certain specific injuries are graded as from 20 to

100 per cent. disabling, and the pensions corresponding to these different degrees of disablement are fixed. For other injuries and for disease it is provided that the pension shall be "assessed at the degree in the schedule which is held most closely to represent the disablement corresponding to the injury or disease."¹⁸ The pension scale ranges for a private soldier from 5s. 6d. to 27s. 6d. a week. Men whose disablement is assessed at less than 20 per cent. receive a gratuity, or temporary allowance, depending in amount on the extent of the disablement but not to exceed £200.¹⁹

The pensions granted under this Warrant may be either permanent or temporary. A permanent pension is granted when the disability is fixed and permanent—that is, when no change for the better or worse may be expected. A temporary pension is granted at the rate appropriate to the temporary disablement when the disablement has not reached its final condition.²⁰

These provisions remain unchanged by the Royal Warrant of 1918.

The amount and kind of disablement pension due a man are determined by a Medical Board on the basis of a medical examination and the case history. Men who receive temporary pensions are thereafter re-examined periodically—usually at intervals of from six months to a year—by Medical Boards, and their pensions are reassessed to correspond to any change that may have occurred in the degree of disability. As soon as the condition is judged permanent, a permanent pension is granted.²¹ If the disability becomes worse before the time set for re-examination, the Local War Pensions Committee, on the advice of its medical referee, can make advances to the man until the next reassessment.

The Warrant of 1917 states expressly that "when a permanent pension has been granted it shall not be altered on account of any change in the man's earning capacity, whether resulting from training or other cause."²² The men evidently feared, however, that their temporary pensions might be on reassessment decreased. To reassure them on this point, a pamphlet issued by Major Robert Mitchell, Director of Training for the Ministry of Pensions, on the advantages of training contains this statement: "Let it be distinctly understood that no reduction whatever to your disablement

pension can be made on account of anything you may earn. A disablement pension, temporary or permanent, is based solely on the degree of disability and will not in any way be affected by the amount of a man's wages."²³

A man's earnings come into the question only if he applies for an alternative pension in lieu of a disablement pension. An alternative pension may be granted on application to a man who shows that his minimum pension with children's allowances, added to the earnings of which he remains capable (if any), is less than his pre-war earnings. He may then receive a sum which added to his present average earnings will bring his income up to his pre-war earnings to a maximum of 50s. plus half of any pre-war earnings between 50s. and 100s. a week.²⁴

During a discussion of pensions in Parliament in September, 1917, Mr. Barnes, then Minister of Pensions, was asked by a member: "Is it a fact that the only case in which a Medical Board can ask a man his actual earnings is where they are fixing an alternative pension?" Mr. Barnes' answer, "That is the only case," is unequivocal.²⁵

An official statement by the Ministry of Pensions published in the *London Times* of February 20, 1919, takes up the question of alleged reduction of pensions. As a clear and explicit statement of pension procedure it is worth quoting in full.

It has been repeatedly stated in various quarters that disabled men going before medical boards have their pensions cut down, the implication being that a deliberate policy of reducing pensions has been instituted. The allegation is entirely unfounded. Disablement pensions are provisionally awarded for a period—it may be three months, six months, or a year—at a rate corresponding to the degree of disability ascertained by medical examination. On re-examination at the end of the period (or before the expiry of the period in some cases, as, for instance, when the man's condition has been reported by the local medical referee to have become worse) the disability may be reassessed.

Disablement pensions being based upon the principle of compensation for injury or disease arising out of war service, a disappearance or abatement of the injury or disease and the return, or par-

tial return, to normal health necessarily involve a corresponding reduction of the pension. Where the pension has been reduced as the result of medical examination it is because the medical board has certified an improvement in health. If, on the other hand, the man's state of health is found to have become worse owing to injury or disease arising out of his war service, a higher rate of pension is awarded. If the deterioration in health occurs before the date originally fixed for re-examination, the local War Pensions Committee, acting on the local medical referee's report, may, until the re-examination, make advances representing the difference between the pension the man is receiving and the pension to which his actual condition would entitle him. These advances are recoverable only when the medical referee's report is upheld.

The re-examination actually takes place some weeks before the expiration of the period for which pension is granted, and improvement in health does not mean an immediate reduction of pension, but a reduction only from the date (some weeks later) when the former pension expires.

It is important to remember that the pensions with which the Ministry of Pensions deals are granted because of disablement, not because of service in the war.

BELGIUM.

The Belgian pension law of April 5, 1917, was passed as a temporary measure to be superseded when the country should be delivered and restored. There is, therefore, no object in analyzing its provisions.

ITALY.

The Italian pension law of May 20, 1917, divides disabilities into ten classes according as they diminish the man's capacity for profitable work from 10 to 100 per cent. A man with a disability which falls into one of the first eight classes receives a life pension of from 378 to 1,260 lire a year, with supplementary allowances if he is totally disabled and needs an attendant. For disabilities of the ninth and tenth classes a temporary allowance equal to a pension of

the eighth class is granted for a period of from six months to six years.²⁶

When the gravity of the disability or its permanent character cannot be definitely determined, the law authorizes the grant of a temporary pension based on the regular pension scale. This may be granted for a period of not less than one year or more than five; at the end of the allotted period it may be renewed, converted into a life pension, or discontinued. After eight years have passed, the condition must be considered permanent and the pension either made permanent or discontinued.²⁷

A large number of specific disabilities are listed under the ten classes, but the law recognizes that there will be cases not therein included and provides that these shall be "ascribed to the class which contains disabilities causing an equivalent diminution of the capacity for profitable work."²⁸ Additional directions on the assessment of non-specified disabilities are contained in a circular issued by the Inspector of the Military Health Department to the District Directors of the Department. This directs the examining doctors whose duty it is to determine "by analogy" the class of non-specified disabilities to base their decision upon a consideration of the "diminished functional ability resulting from loss of organs, limbs, or parts of limbs or from functional disturbances."²⁹

It is evident, therefore, that the amount of the pension depends on the doctors' estimation of the physical disability. That it may not be reduced on account of anything the man may earn is expressly stated in article nineteen of the pension law, which reads: "In accordance with the present law there can be no change in the pension granted to a disabled soldier whatever degree of re-education he may have attained or whatever employment he may have secured."³⁰ False reports on this matter have created in the Italian soldier as in his comrades of the other warring countries a reluctance to take training, and it has been necessary for the government to combat these reports by numerous published statements. For example, a propaganda booklet issued by the "National Board" to inform disabled soldiers of government measures in their interest contains the following: "Disabled soldiers should know that the pensions granted them by the state can

never be in any way diminished or discontinued whatever the recipients may earn by their labor or employment."³¹

CANADA.

Canadian pensions are divided into twenty classes and are awarded in direct proportion to the degree of disability, which is graded from 5 to 100 per cent. The

mined by the Board of Pension Commissioners on the basis of a report of his medical examination before discharge and the other details of his condition. The percentage that any disability bears to a total disability has been carefully calculated by experts.³² For example, in the case of pulmonary tuberculosis the following table has been drawn up to serve as a guide in estimating the disability percentage:

TABLE FOR ESTIMATING INCAPACITY IN PULMONARY TUBERCULOSIS.

N. B.—When it is considered advisable, medical officers will make an estimate of disability graded at any percentage other than that named in the table. The terminology used, and its assigned interpretation, is that employed by the National Association for the Prevention of Tuberculosis.

Class	Condition	Clinical Description	Employability	Percentage of Disability
1	Not improved			100
2	Improved	Where there has been improvement sufficient to allow the use of the term.	These cases will, in all likelihood, relapse on any but the lightest kind of work. During the first six months, at least, disability should be considered as total.	100
3	Quiescent	No constitutional symptoms; tubercle bacilli may be present or not; stationary or better in physical signs, all the foregoing having been present at least two months.	Practically an active case under ordinary conditions of life, and should rest at least 75 per cent. of his time, in order to carry on in fair health—hence a minimum of 80 per cent. for the first six months.	80-100
4	Apparently arrested	Signs of a healed lesion without any symptoms for three months.	Should rest half of his time.	50-80
5	Arrested	Signs of a healed lesion without relapse at end of six months under ordinary living conditions.	Should rest one-quarter of his time.	25-50
6	Apparently cured	Signs of a healed lesion without relapse at end of two years under ordinary living conditions.	Only limitation of employability is that he should avoid certain occupations involving undue exposure to dust and debilitating conditions.	

NOTE.—In estimating disability the fibrosis and destruction of lung tissue, debility, and tendency to relapse must be taken into account.

amount of a pension of the first class, or a 100 per cent. disability pension, is \$600 a year; of a class 20 pension, for 5 per cent. disability, \$30. A permanent disability of less than 5 per cent. entitles to a gratuity of not more than \$100.³²

A man's percentage of disability is deter-

All pensions, except in those cases where the disability is obviously permanent, are subject to periodical review. If, in reviewing a case, the medical advisors of the Board of Pension Commissioners find that the man's condition has improved or grown worse, they reduce or raise the estimate

of his disability percentage, and he receives a corresponding decrease or increase of pension. "A pension lasts as long as the disability for which it was awarded exists."³⁴

Increased earnings cannot effect a reduction of the pension. On this point the Pension Regulations contain the following explicit statement: "No deduction shall be made from the amount awarded to any pensioner owing to his having undertaken work or perfected himself in some form of industry."³⁵ In other words, to quote *Reconstruction*, the official bulletin of the Department of Soldiers' Civil Re-establishment: "A pension is compensation for disability, not payment for incapacity in any particular line or branch of work—so a pensioner need not worry that his pension will be reduced if and when he finds employment, or fits himself for a trade, or takes up any other means of earning a livelihood."³⁶

GERMANY.

The German war pensions, for privates and non-commissioned officers are governed by the pension law of 1906. Under this law the pension is composed of several parts. There is, in the first place, the military annuity (*Militärrente*), which is a pension varying according to the degree of disability and to military rank. The law fixes for each rank the amount of the annuity for total disability, and the annuity is in each case granted as a percentage of that amount according to the degree of disability as determined by the military medical pension boards. No annuity is paid if the disability is less than 10 per cent.

There are, in addition, several supplementary allowances. The war allowance (*Kriegszulage*) is paid to all those who are entitled to the military annuity as a result of disability incurred in and as a result of war service; its amount (fifteen marks monthly) is fixed irrespective of the degree of disability and of military rank.

The disability allowance (*Verstümmelungszulage*) is paid also as a fixed monthly amount (twenty-seven marks), irrespective of military rank, to those who have suffered certain serious injuries: the loss of a hand, of a foot, the loss of speech, deafness in both ears. Men blinded in both eyes receive a double allowance, as do also those who have lost two limbs; in fact, the allow-

ance is cumulative, and a soldier who has been totally blinded and, in addition, has lost both arms and both legs, should receive six times the normal amount.³⁷ The allowance may also be granted whenever the use of a limb has been impaired to such an extent as to make the impairment equivalent to a loss of the limb; or when one eye has been lost and the other has a vision less than one-half of normal; or when the man has suffered any other serious impairment of his health that necessitates permanent attendance by another person; in cases of mental disease requiring institutional treatment or of serious illness the amount of the allowance may be increased up to fifty-four marks a month.

There are also allowances of a less general importance, as, for instance, the old age allowance (*Alterszulage*) which is given to men of fifty-five years and over whose annual income is less than 600 marks; the air service allowance (*Luftdienstzulage*); the tropical service allowance (*Tropenzulage*), and so on.

Of the several component parts of the pension, one, namely the war allowance, cannot be reduced under any circumstances and is paid as a fixed amount as long as the military annuity is paid, that is, as long as there is a disability of 10 per cent. or more.

The disability allowance may be granted either permanently, if the injury may by its nature be expected to be permanent, or for the duration of the injury. The former is evidently the case for amputations. On the contrary, the allowance may frequently be but temporary when granted for serious disease; in this case, moreover, the granting is optional with the authorities, and the man has no legal claim to the allowance.

The military annuity is subject to revision and may, upon an application of the recipient or by a ruling of the authorities, be increased, reduced, or withdrawn, if there has been a "substantial change" in the condition that determined its being granted. Applications for an increase of the annuity may be made at any time. A downward revision or a withdrawal may take place only once a year.³⁸ "Substantial change" has been defined in instructions issued in 1909 as a change in the degree of disability equal to at least 10 per cent. of total disability.³⁹

The pension is thus partly fixed and partly variable, and the relative importance of the two portions varies according to individual cases. In amputation cases the portion that remains fixed will, as a rule, be considerable. Thus, for instance, a private, who has lost a limb and whose disability has been estimated at 50 per cent., is granted an annuity of 270 marks, which will be liable to revision with every change in his condition; against this the portion that will remain fixed is equal to the combined amount of the war and disability allowances, namely 504 marks. On the contrary, in cases of internal disease no disability allowance is granted as a rule, and consequently the variable portion of the pension bears a much higher ratio to the fixed one.

The question as to whether the amount of the annuity depends upon the man's physical condition only, or whether and to what extent it may be affected by the fact of his employment and by an increase in his earnings, cannot be definitely answered. To denote the disability on which the annuity is based, the pension law uses the term *Erwerbsunfähigkeit*—incapacity for gainful work. This is frequently interpreted as referring to physical incapacity only. Thus, one of the foremost authorities on the problem of the disabled soldier states that "a substantial change cannot be seen in the fact alone that the disabled soldier is able to work for wages or that he succeeds in the course of time in attaining better wage conditions. We only have such a change when the physical condition of the man has permanently and substantially improved."⁴⁰ The same interpretation, tho in a less categorical form, is given in a pamphlet issued by the Prussian War Ministry for the information of disabled soldiers: "The evaluation of the degree of incapacity is based mainly upon the physical condition of the injured as determined by the injury, and not upon his general condition or upon his trade activities or the earnings derived from them. The supposition that the resumption of trade activities may *in itself* have as a result a decrease or a withdrawal of the pension is altogether wrong."⁴¹

In determining the degree of incapacity in amputation cases the effect of artificial limbs is taken into consideration. A higher temporary pension may be granted while

the man is waiting for an adequate artificial limb to be supplied.⁴²

On the other hand, it was possible to no less an authority than Professor Konrad Biesalski to state that the annuity "is fixed according to the impairment of the earning capacity, just as in the case of industrial accidents, and this annuity may under circumstances be withdrawn, namely when the man works and thus proves that his earning capacity is no longer limited."⁴³

As a matter of fact, tho it has been generally recognized in Germany that the "pension psychosis" is the greatest obstacle to the rehabilitation of the disabled, and tho continuous efforts have been made to overcome it by dispelling the idea that rehabilitation means a decreased pension, there never has been given a definite pledge, such as those given in France or in Italy, that the pension would under no circumstances be affected by the earnings. The assurances that have been given in Germany are much more moderate and more cautious.

A Prussian ministerial circular of September, 1915, states that "a decrease or a withdrawal of the annuity can only take place in the case of a substantial increase of the earning capacity [underscored in the text]; to what extent employment in a gainful occupation may be considered as proof of such an increase cannot be stated in a general way." The circular further points out that the payment of the war allowance will continue as long as the earning capacity of the man is impaired to any measurable extent; no change in the amount of the disability allowance is as a rule possible. Therefore in cases of amputation, for instance, the man, "in addition to an annuity corresponding to the degree of disability," will receive the two supplementary allowances, "irrespective of the income he may derive from gainful employment." "The authorities concerned have been requested, in order to facilitate an unimpeded return of the disabled to civilian life and not to interfere with their vocational training and readaptation to work, which in some cases may require considerable time, not to fix too short periods for the revision of the pension."⁴⁴

In the official publication of the Prussian War Ministry devoted to the problems of disabled soldiers we find mention of several provisions made to overcome the apprehen-

sion of the men that to take up remunerative work may mean a reduction or a loss of the pension. These provisions include assurance given to the men who may take up work before the pension procedure has been completed that their earnings during the intervening period will not affect the amount of the pension; the maintaining of the principle that revisions shall not take place more than once a year and a recommendation to extend this period, whenever this may be necessary, to two or three years or even more; the issuing of special certificates to those men whose injury does not permit to expect a restoration of their earning capacity to over 90 per cent. of normal, to the effect that no complete withdrawal of their pension will ever take place.⁴⁵

Paul H. Perls, of the Siemens-Schuckert plant, who has been active in readapting disabled soldiers to factory work gives the following statement of the relation of the pension to earning capacity: "The idea is frequently found among disabled soldiers that they will lose their pension if they enter employment. This idea is wrong. The war allowance continues as long as there remains any reduction of earning capacity due to war service; the disability allowance is paid as long as there is disability, which, as a general rule, means for life. As to the military annuity, it can only be decreased or withdrawn if there has taken place a *substantial change* in the condition that had determined the granting of the pension. Substantial change there is when the physical condition of the disabled man has substantially improved, or when he has become so much accustomed to his sickness or infirmity that the impairment of his earning capacity has become less, as, for instance, thru habituation to artificial limbs, or when his earning capacity has increased thru additional training. A decrease of the pension is always conditioned upon the change in the degree of disability being of at least 10 per cent. The military administration has repeatedly assured that the prescriptions regarding the change of the amount of the pensions of the disabled would be enforced with the greatest benevolence. No disabled soldier should fear that his annuity might be reduced by the amount of his wages."⁴⁶

There is one provision in the pension law by which the amount of the pension is directly affected by the fact of employment.

If, namely, the disabled man enters civil service the payment of the portion of his pension which is equal to 20 per cent. or less of that for total disability, and of that portion which exceeds 60 per cent. of that for total disability, is suspended for the duration of his employment. However, an order of the Imperial Chancellor, issued during the war, has exempted from this provision all state and municipal employees.⁴⁷

In direct relation to earnings is the so-called supplementary pension (*Zusatzrente*) which may under certain conditions be paid out of a special fund created during the war to disabled soldiers to cover the difference of their pre-war earnings and their present total income.

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THE PLACE OF MECHANO-THERAPY IN THE RE-EDUCATION OF IMPAIRED MOVEMENTS.

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Much mental confusion has been caused by thinking of massage and mechano-therapy as being an alternate for, or in opposition to, occupation in the treatment of wounded men. It is scarcely more reasonable than to debate the relative merits of salad and ice cream as a complete diet. They are both courses in an orderly sequence of treatment.

The muscles, especially if hampered by imperfect nerve supply or starved by constricting scar tissue, must first of all be flushed with blood, either by hot water, by radiant heat, or by diathermy; they must then be manipulated and, in certain cases, stretched by the operator, but when heat,

massage and passive movement have done all they can, the patient has still a long way to go to complete recovery, and here is the point at which the greatest divergence of views begins.



From McKenzie's "Reclaiming the Maimed."
Courtesy of the Macmillan Co.

FIG. 1. Inclined ladder for exercising the stump of amputated leg with parallel bars to help balance. On either side of the bars are seen the inversion and eversion treads for foot training.

There are three ways by which lost or impaired movements are brought back:

1. Specially designed apparatus like the Mosso ergograph for exercising specific groups.
2. Gymnastic movements and exercises which are not so accurate, but which can be designed to train definite movements and co-ordinations.

3. Handicrafts, in which the muscles are unconsciously used for the purpose of accomplishing some useful work.

Each of these, instead of being antagonistic, is a link in the chain of a complete treatment.

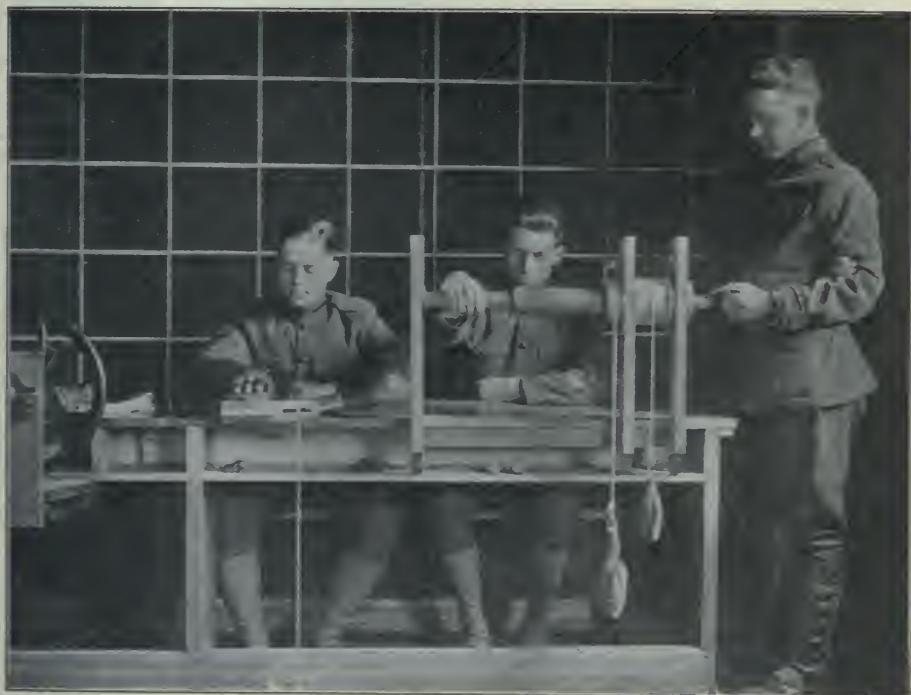
The most widely known system of mechano-therapy before the war was that of Zander, but during the last five years it has fallen into general neglect, partly on account of the great cost of an installation and the complicated construction of the machines, partly from the real danger in employing an apparatus for stretching adhesions which is driven by power beyond the control of the patient and, lastly, from the intolerable boredom that results from the mechanical repetition of a single movement without producing any apparent result.

Single and comparatively inexpensive appliances have been devised as a substitute to bring into more general use this valuable agent in the treatment of these conditions, but even to the appliances which are now used with such success in the many hospitals and convalescent camps in France, England, India, Canada, and at the Clinic for Functional Re-education in New York, I find a prejudice which I believe is capable of analysis. It is composed of a sort of mental laziness that resents having to learn a new thing, which makes it so much easier to dismiss the whole subject in the casual way, rather than learn what it actually does accomplish; in fact, the same mental attitude that ignored the whole subject of physical therapy before the war. Just as the neglect of medical electricity is due largely to lack of knowledge of its technic, so ignorance, sometimes accompanied by an unwillingness to investigate the subject, is responsible for the small place occupied by mechano-therapy in many military hospitals.

The exact place of mechano-therapy must always be kept in mind. That place is immediately after the patient has been prepared by heat in its various forms and manipulation, and it comes before the more complicated and less regulated movements of a craft. It is more closely allied with medical treatment than it is with occupation, and to be successful, it requires an

knee, and walk somewhat as if the extensors were really in action. This is also true of many movements of the shoulder, arm and hand. It is necessary, then, to analyze with great care any action that is absent or impaired and to prescribe exercises that will bear directly upon it.

The appliances here described, tho far from complete are designed:



From McKenzie's "Reclaiming the Maimed."

Courtesy of the Macmillan Co.

FIG. 2. Apparatus for ad- and abduction of the wrist—flexion and extension of the wrist and pronation and supination.

accurate knowledge of the anatomy of the parts involved. It is a commonplace to experienced workers that a patient will always favor a weak muscle group by using other and stronger groups, where possible, to disguise this weakness, so that an apparent action is often shown where the muscles are really impotent. With a little practice, a man whose quadriceps extensor is paralyzed can throw his leg forward, lock his

1. To isolate the muscle group to be developed.
2. To give resistance to the movement by a graduated load.
3. To give an easy method, which can be seen by the patient of measuring the range of movement, and the amount of work done.
4. To interest the patient, who watches the progress of his work, both in amount and distance and who feels a sense of accomplishment when he succeeds in tripping the weight raised to the required height.

The psychology of this is not new. It is the same as that used by the proprietor of a machine familiar to every frequenter of the country fair. A post is hit by a mallet and a pointer runs up a graduated scale. If it reaches the top, it rings a bell, and you get your money back. No man of ambition can resist it, and so in these appliances, the patient can compete against his own record as seen by his own eyes, or against the records of others having similar disabilities and his interest in the work is stimulated from day to day.

Some of the appliances are made for the purpose of passive stretching, but they differ from the Zander machines in that they are always under control of the patient. He may be safely trusted to desist from stretching adhesions long before there is danger of rupturing them. If they ought to be broken down by force, this operation should be done by the surgeon, after due consideration. Most of the appliances about to be described have protractors attached, so that the range of movement can be watched by the patient himself, during the exercise, and this additional incentive given him to use his best efforts. The measurement of ability to repeat movement will be in terms of weight raised and number of repetitions. The maximum strength of the grip can be taken conveniently by partly inflating the cuff of a sphygmomanometer, and noting the height to which the mercury is raised when the cuff is squeezed. This is better for a partially disabled hand than the ordinary dynamometer.

The appliances for improving the strength can be loaded with increasing weights as the power to lift them returns and the patient can be interested in watching the extent of each movement, as shown on the

scale, in watching the rising weight as it is lifted, in calculating the total amount of work done in foot pounds, or in listening to and counting the clicks of the ratchet, as the movement is made.

The operator should be seated opposite the patient in all hand and arm exercises and should regulate the machines and the amount of work done.

UPPER EXTREMITY.

1. Finger board. (a) For stretching contraction of the fingers, in flexion, and (b) for stretching abduction at the metacarpophalangeal joints.

(a) Extension of single fingers: The fingers are placed on the board in moderate flexion, and the finger under treatment goes up the stair, step by step. Note the last step at which the finger under treatment can be raised from the step without assistance. Depress the hand to stretch still farther.

(b) Place the index finger against the peg at 1 and spread the second finger out, noting the farthest point at which it can touch the peg. Repeat with the second, third and fourth.

Repeat each movement not more than five times. The patient then moves to the next five appliances, the operator sitting opposite.

2. Finger pulleys—for flexion and extension of the fingers. Strap the wrist to the arm rest, insert the fingers into the glove stools and fix them by elastic bands. Add weights until they can barely be lifted by the voluntary power of each finger. The weights are increased as improvement goes on, and the movements are repeated up to the point of exhaustion.

1st exercise: High attachment. Flex metacarpophalangeal joints, keeping interphalangeal rigidly extended.

2nd exercise: Horizontal attachment. Flex interphalangeal joints, keeping metacarpophalangeal joints extended.

3rd exercise: Low attachment. Extend metacarpophalangeal joints, keeping interphalangeal extended.

4th exercise: Low attachment. Extend

metacarpophalangeal and flex interphalangeal joints.

The operator seated opposite the patient should count the repetitions and encourage his efforts. Each exercise to be continued till movement shows flagging, and then stopped. The most convenient weights are shot bags, loaded to two ounces each, and

ulnar side to the thumb; draw the thumb out in abduction. Repeat to exhaustion.

4. Finger treadmill—for voluntary flexion of fingers. Strap the wrist and turn the wheel by flexing the fingers in turn till exhaustion of each finger. The amount of work done by a single finger can be calculated by using that finger only, and no-



From McKenzie's "Reclaiming the Maimed."

Courtesy of the Macmillan Co.

FIG. 3. Apparatus for exercising the fingers and thumbs, showing creeping board for stretching the shoulder at the end of the table.

attached by hooks. They can easily be made and repaired by the masseuse.

3. Thumb ad-and abduction—hand in pronation. Attach the thumb stool on the radial side to the thumb for adduction.

1st exercise: Draw the thumb across the hand. Repeat the movement to exhaustion.

2nd exercise: Attach the stool on the

ting the distance and weight raised.

5. Circumduction of wrist for voluntary movement, and for stretching. Strap both the wrist and forearm, grasp the handle, and turn the wheel about twenty revolutions each way. Move out the attachment to the farthest possible point compatible with the movement. The operator may assist at the most difficult part of the turn, by turning

the crank and so stretch a limited action.

6. Ad-and abduction of wrist. Place the fingers under the straps on the hand board, strap down the wrist and forearm, ad-and abduct the hand, noting the range of movements on the protractor. These two movements should be done separately.

7. Flexion and extension of wrist. (1) Grasp the roller overhand and wind up the weight, without releasing the grasp by repeatedly extending the wrist. The scale will measure the range of the movement, and the weight and distance multiplied gives the total work done in foot pounds. Precaution: See that the movement is done



From McKenzie's "Reclaiming the Maimed."
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FIG. 4. Apparatus for rotation with the Rule in flexion.

at the wrist only, and not at the elbow or shoulder. (2) Reverse the grasp and repeat for flexion. Where no grasping power is present, the hand may be held between two plates at right angles to apparatus 6 and flexion and extension obtained.

8. Pronation and supination. Patient stands facing the machine and grasps the handle with the left hand, his left elbow joint flexed, his right forearm across his back, and his hand grasping his left arm above the elbow to prevent sideward movement. Set the weight and ratchet for supina-

tion and turn, counting the clicks for each movement and noting the weight and the distance raised. The measurement of each movement will appear on the protractor. See that patient does not move his elbow out or in, or twist his body. Reverse the ratchet and repeat for pronation.

9. Flexion and extension at elbow. (1) The patient faces the triplicate machine, grasping the floor handle, the arm and cord in line. Flex and relax the forearm. (2) Patient faces away from the machine, grasping the shoulder handle, the arm full flexed, the upper arm in line with the cord. Extend and relax the forearm. In both these exercises, the position of the upper arm must remain unchanged. If this is not done, the direction of the pull is changed.

10. Shoulder rotation. Grasp the floor handle, the elbow on a bracket, shoulder high, the forearm flexed to a right angle. Pull up with the hand, thruout the whole range of the shoulder movement without changing the height of the elbow or its angle of flexion.

11. Flexion and extension of the shoulder joint. (1) The patient stands with his back to the floor handle, the arm down and straight. Arm forward raise, and lower. (2) Face to the floor handle, draw the arm back and lower to position.

12. Ad-and abduction of the shoulder. The patient stands with the side to the triplicate machine, shoulder attachment, arm and cord in line. (1) Bring the arm forward across the chest. (2) Patient stands as in exercise 1, but using the floor attachment. Bring the straight arm upward and lower to position. (3) Patient stands with his side to the machine, overhead attachment, arm in line with the cord. Bring the arm downward and forward, then downward and backward alternately. (4) The patient stands with the side from the machine, grasping the shoulder attachment. Extend the forearm and arm, keeping them at the shoulder level.

13. Passive abduction of shoulder. Patient standing with side to the creeping board, and the forearm rigidly extended. Climb up the board by the fingers with a straight arm, and note: 1st, the highest point at which the fingers can be lifted from the board by the patient; 2nd, the level to which he can bring up his arm with-

out bending his elbow. Keep the body rigid throughout, not bent or twisted.

General movements that are of value in treating the muscles of the upper extremity are rolling up a ball of paper, throwing and catching balls of all sizes and weights, quoits, bowling, pingpong, crokinole, billiards, weaving, knitting, rope splicing, knots, the use of tools, like scissors, boring, hammering, modeling, painting, bookbinding, saddlery and shoemaking.

LOWER EXTREMITY.

14. Circumduction of the ankle. The patient sits with his foot strapped in place. The range of movement is regulated by a thumb screw on the crank. The handle is turned by the patient or operator for this stretching movement, which should precede the voluntary active movements of the ankle.

15. Inversion and eversion of the foot. (a) The patient walks on the inversion ridge, a definite distance, with hand rail support. (b) Ditto for eversion. Both (a) and (b) are stretching movements, and should precede (c) which is active. (c) The patient is seated with the foot and leg strapped to the apparatus. Evert the foot against the weight on the cord, and note the range of the movement on the protractor, and the total weight raised. Reverse this ratchet and repeat for inversion.

16. Dorsiflexion of ankle. The patient sits or stands with his foot strapped to the footpiece. Flex the ankle, raising the weight. The extent of the movement may be estimated by the number of clicks, the exact measurement noted on the protractor, and the total amount of work done is easily calculated.

17. Rotation of the knee. (a) The patient is seated with the foot strapped to the footpiece, and the leg against the brace. He ad-or abducts the foot, rotating the knee, the extent of each movement being marked on the protractor. (b) The patient stands with the knee locked in extension and ad-or abducts the foot. This movement measures hip rotation, if care be taken to keep the pelvis fixed. In either position, the movement of the flexed ankle is slight.

18. Knee flexion and extension. Triplicate machine. Exercise 1. Face the ma-

chine, strap the foot to the floor attachment. Movement: Flex the knee against resistance. Exercise 2. Face from the machine, strap the foot to the floor attachment, the flexed leg and the cord in the same line. Movement: Extend the knee against resistance.

19. Hip ad-and abduction. Triplicate machine. Exercise 1. Side to the machine, the foot strapped to the floor attachment. Movement: Abduct the thigh, keeping the knee straight. Exercise 2. Side from the



From McKenzie's "Reclaiming the Maimed."
Courtesy of the Macmillan Co.

FIG. 5. Apparatus for inversion and eversion of the foot.

machine, foot strapped to the floor attachment. Movement: Abduct the thigh, keeping the knee straight.

20. Hip flexion and extension. Exercise 1. Face to the machine, foot strapped to the floor attachment. Movement: Extend the thigh with the leg stretched. Exercise 2. Face from the machine, foot strapped to the floor attachment. Movement: Flex the thigh, keeping the knee straight.

21. Thigh flexion, knee flexion, foot dorsiflexion. Patient steps thru the rungs

of the horizontal ladder with parallel bar arm rests. The ladder is made adjustable for height at one end, and raised, to increase the movement required to raise the foot over each rung. This is especially useful for leg amputation cases.

22. Thigh extension, knee extension, foot plantarflexion—the bicycle trainer with an increased load of distance or friction. General exercises: Walking, hill climbing, dancing, kicking a football, or hockey puck, balancing, skipping.

In the treatment of stumps, a sheath should be attached and the various pulley weight movements carried out as if the limb were intact.

Amputations. The re-education of amputation cases begins with the preparation of the stump, and fitting of the artificial limb for comfort, and for the correct bearing of the weight. The patient should first learn to balance, which may be made safe if he be suspended by a belt under the arms, working from an overhead trolley or by grasping a bar. This inspires confidence, and prevents falls, especially in amputation at the thigh, where the balance is very difficult to get. The patient then progresses to the use of sticks and progression on a smooth surface. He should discard crutches from the first. This is very important. He then learns to walk on a smooth, level surface with one stick only, to clear obstacles, like the ladder rungs already described, and finally to walk thru soft sand on uneven ground up and down inclines, and over obstructions.

Treatment should not stop at this point. It can be combined advantageously with light gymnastics and various forms of occupation.

Treatment by occupation necessarily differs from it in that it is less accurate and as a remedy it will be given in increasing doses, whereas treatment by mechano-therapy and corrective gymnastics will be gradually abandoned as the patient gains control and strength. Whether or not a movement like sawing is given as treatment with the accomplishment a secondary consideration, or whether the patient saws wood because he

wants to make a box, important as this difference is, the work accomplished by the muscles will be much the same.

I will not at this place go into the question of the mental attitude of the patient, altho I am far from ignoring its importance, but I wish to emphasize the fact that in any course of muscular re-education, one must not depend on inaccurate or haphazard movements and that a complete course of treatment must include analysis of muscular action and the accurate cultivation of the powers that are weakened, by appliances capable of measuring and recording progressive improvement when present, and that many a period of convalescence can be greatly shortened if this is recognized and applied.

NOTE—Illustrations of these appliances can be found in "Reclaiming the Maimed," published by the Macmillan Company.

SALVAGE OF MEN.

BY

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Salvaging, in the common acceptance of the term, means the restoring to some use of material that ordinarily would be lost, wasted or destroyed. For a long time keen and wideawake leaders of industry have realized the great importance of using seemingly waste products, even to the minutest detail, and by so doing millions and millions of dollars have been added to their profits. Also many new products have been developed and the original cost of many others has been lowered to a marked degree. For example, we may refer particularly to what salvage has done for the packing and coke industries. The list of by-products from

the slaughter houses and coke ovens is long and varied and these are obtained from material that was once thrown away, wasted or discarded as of no value.

What about the waste of human material? Has it been so salvaged and used to the best advantage that waste is eliminated or reduced to the minimum? In the past, I think not. Of all our resources, labor has received the least consideration. Granting exceptions in isolated cases, after the cream of a man's efforts had been extracted he was thrown on the scrap heap and in many cases his best assets were lost, not only to himself but to the state. Not only was the good left in him lost but his mere existence became a burden and a nuisance—a clog, interfering with the progress of industry in the same manner as the great piles of refuse from mines, saw-mills and other industries caused annoyance and embarrassment until thought, experiment and necessity revealed the hidden treasures therein concealed.

A benefit not to be despised, resulting from the late world war, is the interest aroused thruout the world in reclaiming to usefulness sick and wounded soldiers. There has been scarcely a paper or magazine published during the past year that has not contained some mention of the subject with which this article is concerned. This interest, once aroused, should continue and expand until it embraces all branches of industry and society in general.

Within the next two years, practically all our wounded and invalided soldiers will have been cared for, but every single year, industry will continue to furnish more subjects for rehabilitation, than came from the entire American forces during the war. Will these receive the same consideration and attention? Let us hope they will. The

present enthusiasm will naturally subside to a certain extent, but the economic necessity will remain and should be constantly kept in mind by those who have this subject at heart. The good work so well started should be kept up until no one physically incapacitated for his own line of work by accident or disease can be forced, or even allowed, to become an object of private or organized charity until every means has been exhausted to make him a self-supporting and useful member of society.

The Ford system of salvaging men did not result from necessity, nor from a scientific study of economics. The inception of the idea came from that principle of Mr. Ford, expressed by the slogan "Help the Other Fellow," this precept implying that those who needed the greatest help should receive the greatest assistance.

So, on January 12, 1914, Henry Ford, while setting the minimum wage for employees of the Ford Motor Company at \$5.00 per day, a day's work consisting of eight hours, issued instructions that no one applying for work in the future should be rejected on account of his physical condition excepting those suffering with contagious diseases endangering the health of fellow employees; and furthermore, that no one should be discharged on account of his physical condition. On January 1, 1919, the minimum wage was again raised to \$6.00 per day with the same rule regarding cripples in force, for during those past five years efficiency and production had increased and the company had not yet gone into the hands of a receiver.

It may be inferred that during the past five years, with the bars let down "to the lame, the halt and the bind," the employees of the Ford Motor Company would number a great many that were not up to the aver-

age physical standard. Such was a fact. At the present time there are 123 men working with either amputated or hopelessly crippled arms, forearms or hands; one with both hands off; 4 totally blind men; 207 blind in one eye; 253 with light perception only in one eye; 37 deaf and dumb; 60 suffering with epilepsy; 4 with both legs or feet missing; 234 with one foot or leg amputated or hopelessly crippled; 1,560 suffering from hernia of various types; 900 tubercular employees and 6,180 more, suffering from other ailments or diseases, bringing the total up to 9,563.

A fact of minor importance but probably of interest is that Ford employees are minus 1,031 of their allotted number of fingers or thumbs.

Let us take two average days in the employment office to show the daily accumulation of defectives. The record for October 10, 1918 shows that there were examined and hired 163 men, only 37 of whom were able to pass the physical examination as O.K.; 13 were found to have varicocele; 36 poor eye sight; 58 flat feet; 2 organic heart disease; 31 poor teeth; 14 varicose veins; 15 hernia; 1 nephritis; 1 club foot; 1 tuberculosis; 2 chronic bronchitis; 1 with only one eye; 1 deformed leg; 1 with hemorrhoids and 1 mentally defective. On October 11, 1918 a total of 185 men were hired, of whom 11 had varicocele; 23 poor eye sight; 58 flat feet; 35 poor teeth; 14 varicose veins; 14 hernia; 7 with crippled hands; 4 with defective hearing; 1 crippled foot and 2 with crippled legs. Only 8 were found to be physically perfect.

How are these employees placed so that their maximum ability can be realized in the manufacture of the Ford product? A man applying for a job is first interviewed and the preliminary employment papers

written up in the employment office. He is then immediately referred to the examining surgeon, who gives him a most thoro examination. If found to be suffering with a contagious disease, dangerous to the health of fellow employees, he is refused immediate employment and the case reported to the local health authorities. If, however, his debarring ailment is acute and probably will respond readily to treatment, he is assured that when he can present a clean bill of health he will be accepted.

One of the important questions on the examining blank is that one pertaining to the class of work that the applicant is fitted to perform. If he is in perfect physical condition, strong and well built, he is listed for any work; if in perfect condition but of slight build, he is cited for moderate work of any kind, but if found physically sub-standard or suffering from any ailment or disease, a note is made of his condition with special recommendations to the employment office to place him on a job, the requirements of which will not handicap him in the performance of his work.

Once hired, a man is assured of permanent employment, for, as stated before, one rule of this company which is hard and fast and which to my knowledge has never been broken, is that no person shall be discharged or laid off because he is physically unable to do his work. This, however, does not prevent an employee, who is acutely ill or in need of rest and medical attention, from obtaining a sick leave, with the assurance that his job will be awaiting him on his recovery.

During the past year the average number of employees of the Ford Motor Company was 33,000. As recorded before, 9,563 of these were either actual cripples or men suffering with some ailment or disease or

otherwise physically below par, including many aged men between 70 and 80 years old.

How is an equitable adjustment of the work to the man accomplished? An accurate card index is on file showing the number of different jobs or operations performed in the course of manufacturing the various parts and of assembling the Ford product. These cards give the department number; operation number; kind of machine and a description of the work, whether light, medium or heavy; dry or wet, if wet, the kind of fluid used; clean or dirty; near an oven or furnace; condition of air in the department; whether one or both hands are used; whether the employee sits down or stands at his work; whether it is noisy or quiet; accurate or inaccurate; natural or artificial light; number of shifts; the approximate number of pieces handled per hour; the weight of the material or piece handled and a description of any strain the workman is under.

There is a total of 7,882 of these cards, describing that number of different jobs in the factory. Of these, 949 are classified as heavy work, requiring strong able-bodied and practically physically perfect men; 3,338 require men of ordinary physical development and strength, while the remainder, 3,595, call for practically no physical exertion and can be performed by men of the slightest build or physical development. In fact, the last class of work could be performed by women or older children without taxing their strength. As many of the lightest operations require the use of all a person's faculties and would not be suitable for many of the cripples, another canvass was made to ascertain the number of jobs that could be performed by the various classes of cripples.

This list showed that 670 could be performed by legless men; 2,637 by one-legged men; 2 by armless men; 715 by one-armed men and 10 by blind men. To become proficient in these various occupations, the time required was estimated as follows:

1,743 jobs, or 43%, would require one day or less;

1,461 jobs, or 36%, one day to one week;

251 jobs, or 6%, one to two weeks;

534 jobs, or 14%, one month to one year;

43 jobs, or 1%, one to six years.

The last mentioned are skilled trades, such as tool-making and die-sinking.

From the study of this subject of salvage two fundamental facts became prominent: *First*, there were 9,563 substandard men who required more or less consideration in order to secure efficiency from their labor, and *second*, thruout the plant there were over 14,000 jobs perfectly suited to the various types and conditions of these physically substandard men. The problem then became clear and the solution simple. It was the rational adjustment of the two factors, the man and the job.

While the procedure is simple, system is necessary to properly carry on this work in a factory the size of the Ford Motor Company and conducted on its liberal principles. Therefore, there resulted the establishment of a transfer department and thru it, all cases receive individual attention and proper adjustment. If for any reason the suitability of a man for his work is criticized, whether the complaint comes from the employee himself, his foreman, superintendent, Medical Department or Educational Department, the man is given a printed form labeled "Request for Medical Examination" and is sent to the transfer office. Here he receives a thoro physical examination,

the descriptive card of his work consulted and if he is found in any way unfit for his work, he is transferred to a job suited to his condition. The work of this department is facilitated by supplying it with a daily list of "Help Wanted," giving the number of men needed and the class of work available in the different departments in the factory.

This system necessarily creates a constant change of labor from one department to another but this inconvenience is more than overcome by the contentment of the employee, the prevention of lost time and the increase of production resulting from satisfied workmen.

Allow me to digress for a moment and relate an incident that occurred a short time ago, illustrating the efficiency of a totally blind man. When first hired it was intended to place him on the same work as that being done by other blind men but, on investigation, it was found that stock for these men was getting low and other work must be provided. Three different jobs were soon found that he could do and he was finally assigned to the Stock Department, counting bolts, nuts, etc., for shipment to the Branches. Two other able-bodied men were already employed at this same work. Two days later a note from the foreman was sent to the Transfer Department, stating that he could release the two older employees as the blind man was doing the work formerly done by both of them. This is but one of many instances that could be cited, showing the results of proper assignment of work.

Criticism of the monotony and lack of opportunity resulting from the modern method of manufacture is often heard and is probably in the minds of many who read this article. These objectionable features of

modern labor have been realized by the Ford Motor Company and very recently a method devised whereby these contingencies may be met and their objections overcome.

Four of the larger departments have been chosen for experiment and if proven practical, the entire factory will be placed under the same system. In these selected departments the work has been classified according to its desirability and the skill required in its performance. There are three different classes of work in each department, A, B and C, each class comprising from 10 to 30 different operations. The men in Class A are eligible for promotion to the next higher department as vacancies occur. When these promotions take place the vacancies made, cause a general advancement all along the line, leaving the jobs in Class C open to new men from an inferior department or from the employment office.

Of course, an employee must show his fitness for advancement or he will be passed by those below him. By this plan the chance to advance to the highest class of employment, that of tool-maker, is open to all employees who care to take advantage of their opportunities.

If a man by this plan of promotion finds that his mental qualifications bar him from further progress, the highest position which he has attained becomes permanent, or, if not satisfied, he is transferred to an entirely different department that might prove more suited to his qualifications.

Under this system, physical defects will play an unimportant role, for when such are found to be interfering with a man's opportunities, special endeavor will be made, thru the cooperation of the Educational and Medical Departments with the man and his foreman, to overcome the difficulties.

Rehabilitation, as I understand the term, means the adapting and training of a cripple for an occupation that will eventually prove best suited to his physical condition. The course probably takes many months to insure proficiency and the period of instruction entails an expense which no private industrial organization can be expected to assume on a large scale. The Ford plan does not exactly coincide with the government system but is closely related to it and with results practically the same. Its plan is to place a cripple on a job of such a nature that his services immediately become profitable to himself and to the company and then, by all the help and encouragement possible, to advance him to the limit of his qualifications.

Occasionally opportunities for real physical reconstruction present themselves. For illustration two cases may be cited. Both were afflicted with deformities of the lower extremities, necessitating the use of two crutches, thus seriously handicapping their usefulness. One was an old employee and the other was hired with the intention of reconstruction. Both were operated on by the medical staff with the most gratifying results. Their full faculties were regained and the use of either crutches or canes became unnecessary.

In looking over the program several subjects were noted, in which our company has shown interest.

In our experience, deaf and dumb employees need no particular consideration, for the 37 working at our plant have all proven 100% efficient.

For the past six years the Ford Motor Company has paid particular attention to the problem of the tubercular employee. One physician has devoted his entire time to this subject. His duties comprise the

examination of all suspects, the proper assignment of their work, instruction in personal hygiene and the proper mode of living—and a periodical observation of their condition. Institutional cases are sent to the different sanatoria at the company's expense while those who are able to work are assigned to departments especially adapted to their condition. A majority of the 900 known tubercular employees work in the Salvage Department, which includes the carpenter shop, lumber yard and TB shed. The latter is a specially constructed building assigned exclusively to active cases that are considered contagious and a menace to the health of fellow workmen. It might be stated that the net profits from the Salvage Department, the employees of which are practically all tubercular, average \$70,000.00 per month.

In connection with the subject of bedside and ward occupations, brief mention of a plan instituted in the Ford factory over a year ago may be of interest.

The great majority of Ford employees compelled to lose time on account of accidents consists of those receiving injuries to the feet or legs, such as fractures, severe contusions, etc., necessitating their confinement to bed. As a rule, these cases after the first few days are free from pain and in normal physical condition excepting for their inability to walk about. It seemed a great economic loss, both to the employee and to the company, to have men lying in bed at home or in the hospital, sometimes for two months or more, when, if work could be furnished them that could be done while in bed, the saving to all concerned would be considerable.

At the time this experiment was started we had three men in our Factory Hospital with broken legs, one had both bones in

both legs broken and the other two had fractures of the tibia. These injuries were of about two weeks' duration, the pain had practically subsided and the patients were able to sit up in bed with head rests. Black oil cloth covers were provided to keep the bed clothes clean and the men were set to work screwing nuts on little $\frac{1}{4}$ by 2" bolts. The job is one that had to be done by hand and kept fifteen or twenty men busy in the Magneto Department, showing that it was work that had to be done by someone and not a useless occupation created purposely for these men.

From the first the patients took to it with enthusiasm and showed their appreciation of doing something by increasing production on this particular work 20%. The material was brought to the hospital morning and noon and was handed to the men by the ward orderly as occasion demanded. The men were much more contented, slept better at night, ate better and I think recovered more rapidly. They received their regular wages, the company got the product of their services and was not obliged to pay compensation or gratuities, which generally amount to at least \$20.00 per week in each case.

The happy results of the system of salvaging men inaugurated by the Ford Motor Company over five years ago have been so satisfactory, and indeed profitable, that it has been adopted by all the Ford interests, including the River Rouge Ship Plant, Blast Furnace, Tractor Plant at Dearborn and the many Branches thruout the world. If every large industrial concern would adopt a similar plan, showing no discrimination toward the disabled in the hiring of men and using discretion in their assignment to work, it would hardly be necessary for the Government to institute such an elaborate and

comprehensive plan of rehabilitation as is now under way.

Those in charge of this great work can rest assured that any of the 5,700 former employees of the Ford Motor Company, who return from service in need of reconstruction or rehabilitation, will receive every care and attention necessary to make them happy and useful citizens, and if any return totally and hopelessly disabled, they and their dependents will not have to seek charity beyond that of their employer who released them for their country's need.

EXPERIENCES IN WAR SURGERY.

BY

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Many medical men entered the American Army during the war with the expectation of gaining a surgical experience. They expected to learn the latest technic in the handling of traumatic injuries, the treatment of infected wounds, procedures employed in the care of fractures, the localization and removal of foreign bodies, the plastic operations for the reconstruction of disfiguring scars or faulty repair of tissues and finally the reconstruction of the men themselves by the employment of orthopedic surgery. In a word, they expected to become surgeons—military surgeons. Some of them did. For others it is not yet too late.

In the majority of instances the desire of these medical men was not fulfilled, for the great influenza pandemic was encountered and the majority of the physicians in

the army were doing medical work instead of gaining the surgical experience to which they had looked forward.

My own expectations and experiences were in direct contrast with these. When I entered into military medical work in the early part of the war, it was with the idea of doing medical work to the exclusion of surgery. For a time, during the typhus epidemic, I was occupied with what

Serbia at the moment when Mackensen was ready to attack. It was during this retreat, attached to the second Serbian Army, that I had my first enforced military surgical experience.

I make mention of this to try and show the difficulties which beset the physician who is not trained to care for wounded men. This may be called an extreme example, for the organization of the medical



FIG. 1. Burial of an American physician during the typhus epidemic in Serbia.

is termed internal medicine and there was plenty of work to be done. However, after the epidemic had subsided and we had a spell of inactivity occasioned by a lull in operations on the Serbian front, the Germans launched their great drive. Mackensen was in command and he headed a heterogeneous army of over a million men, composed of Germans, Austrians and the Bulgarians, who had declared war upon

branch of the army had been shattered during the retreat. It was impossible to provide medical supplies, for the transport facilities were limited to ox teams, drawing springless wagons, and they were taxed to the utmost in carrying the so-called primary essentials, food and ammunition.

It was in this retreat that I experienced my first training in military surgery. In this jumbled mass of mangled humanity

there was no semblance of order. Each surgeon with his disorganized staff tried to do his best in treating the few wounded he could reach. During every one of the seventy wild and sunless days of this fighting it rained or snowed. Often from the crest of the hill we could see the advance guard of the Austrians or Germans as they rode up to a newly evacuated village. Shortly after, their light artillery would

lying on the floors dressed in uniforms and depending upon the heat of their bodies for warmth. Occasionally a surgeon would be working with untrained assistants, operating in the most urgent cases; the other medical men had retreated with their companies. Small buildings contained thousands of men and bedding was seldom seen. The rooms were so crowded with the ragged brown bundles that it was nec-



FIG. 2. Cemetery in Serbia after typhus epidemic.

send their monotonous shells against our new positions and our machine gun crews would try to hold the oncoming foe at bay, to enable the body of our army to lumber away to Albania and to safety.

Retreating, we would come to hospitals—they called them hospitals. The largest buildings in the community would be used for the wounded, school buildings, barracks and churches. The wounded were

necessary to step between the bodies in walking thru. The odors from the unwashed men and their undressed wounds did not rise to heaven, but remained in the sealed rooms, for there were no stoves and very few blankets. There was no attempt at sanitation, the bodily refuse was not even removed. There was no food; we did not bury the dead for we could not properly care for the living. Then word would

come that the Newetchke were coming. They feared the Germans more than they feared death or exposure, and when they heard the news and were told that all who were able should retreat with the army, then the mass would untangle itself and, with varying degrees of speed, melt into the retreating army. Few were left.

I have seen men who had been recently operated upon crawl away on all fours in the dead of night and topple over—dead—a few yards away from the hospital. The

of the surviving wounded, mingled with the hordes of civilian refugees, were awaiting their inevitable capture.

These men were not cowards. They fought as courageously as any of the troops in Europe. They were not afraid to stand up and fight the foe and often when the bugle sounded the order for retreat they would hold their positions against orders and die fighting. They did not fear death or wounds; they feared the torture which they knew would come with



FIG. 3. Dressing the wounded in a Serbian hospital.

recollection of the first two invasions of Serbia by Austria with the tales and evidences of the atrocities which had been committed had not been forgotten. The invaders found an empty and devastated country, until they reached the Albanian and Montenegrin borders. Here the men could go no farther for the few available roads were choked by columns of marching troops and lumbering artillery. Here in this barren country hundreds of thousands

captivity. They had learned their lesson—too well.

There is no question that, in judging from past events, their actions were within the realm of reason. The atrocities committed by the invading Austrian armies were far more brutal than any which had been done in Belgium. It is not to revive old hatreds that I mention these but merely to seek a satisfactory explanation for these atrocities and for atrocities in general. War

is a difficult thing to analyze and some of the acts committed when the restraint of our so-called civilization is removed and the lower, perhaps the true man, is revealed, leave us with a blank response. Excuses are made, and we always retain the more likely of these in defending our own men, or those more nearly allied to us.

The actions of our foes were not limited to atrocities and extreme acts of barbarity but would shift to the other extreme,

his way. I thought no more about it. Three o'clock next morning he came to the hospital and hunted me up in my room. He had brought me a loaf of bread. He explained that the field ovens had arrived and the hot loaf had just been baked. He had crossed the line of fire and brought me the loaf of bread. I do not praise this man. I do not understand this act any more than the brutal ones which I had seen. Is it the violence of war that takes the



FIG. 4. Serbian "untrained" nurses assisting at an operation.

and acts of great kindness, as in my own case when I was a prisoner, may be truthfully recorded. The following instance will serve to illustrate: A few hours after I had been captured and we were still under fire, this time from our own artillery, a German medical officer called at the hospital in my charge and asked me if I had food. I told him we had received nothing to eat for the past three days. He went

brakes of reason away from men and places them beyond the sphere of sanity?

If the retreating Serbs had known that they would not be harmed by the invading Germans they would not have fled like frightened rabbits. The Germans in trying to teach the Belgians a lesson of violence and intimidation had learned a lesson themselves. They had by this time come to the realization that they could not ex-

ploit a conquered country to the best advantage by a reign of terror. So when they found the cowering refugees they did their best to calm and reassure them and transported them back to their homes so they could live in a settled country in place of a devastated one. They tried their best to prevent a feeling of hatred from permeating the people of the country, for they knew they could never conquer a rebellious people like the Serbians by violent measures.

was working with them that I had my first systematic surgical training. Professor Franz took me in charge. He was an eagle-eyed individual and after a grilling examination which he finished with a grunt he gave me a table alongside his own and directed the work. Formerly he had been a gynecologist in Berlin. He should have been a detective or perhaps a burglar. He was ruthless and looked and acted as tho the reputation of the military bearing of his nation depended upon him. He was a



FIG. 5. French Medical Mission in Serbia for typhus epidemic.

It was under these conditions that smatterings of surgical experience came to me. Whenever we were able, we worked as best we could; at times we could do nothing. There were no bandages, no antiseptics. The moaning men would plead for aid and the best we could do was to set fractures from improvised splints made from doors or window frames.

Finally, the Germans overtook us and it

good surgeon, but a better officer from the old German point of view.

He operated upon heads and abdomens only and made no discriminations between his men and the enemy. Many of the others did. They would not give any surgical attention to enemy soldiers until they had operated upon their own men. We were now at a front line hospital and for several days under fire from the Serbian artillery

and we sent all patients to the rear who could be transported. Supplies were coming in with regularity. Most of the apparatus had been transported by trucks. Sterilizers filled with gauze, X-ray appliances, splints and instruments were not lacking.

One of the things advocated by Franz was the use of dry sterile dressings on flesh wounds. He did not sanction the use of antiseptic solutions unless the wounds were obviously infected. I never learned the reason for this.

Some time later we were transferred to a hospital further back. Here the work was less hastily done and there were efficient women nurses, the first I had seen since the beginning of the war. Later, on the western front, I saw the women of the trained British and French nurses and they were far superior. But from my point of view, after seeing the nurses and surgeons of practically all the warring countries, the best work was done by the American surgeons and nurses, the difference in the nurses being the most marked. This difference was simply due to training and I do not doubt that with the same quantity and quality of training, the foreign nurses would compare favorably with our own. Any differences in ability were not due to lack of devotion to the work they were doing.

The keynote to the work done in the German hospitals was characterized by efficiency, to the point of ruthlessness and brutality. The patients were not regarded as human beings but only as parts of the governmental machine, the army, and their first thought was to get the men back into shape in all possible haste so they could be sent back to the front.

In my short stay in the various German hospitals I did not see any surgical procedures which were not improved upon by

the Allies on the western front. In the handling of fractures in the Balkan beds, in the localization and removal of foreign bodies, as perfected by the French, in abdominal surgery, which the British handled in a phenomenal way, in the treatment of infected wounds, and in many other vital branches of surgery the Allies revolutionized the older methods. The Germans were content as a general rule to stick to the older methods. They were thorough and in this way they got the most out of their methods. They were not slow to adopt the devices and appliances of the Allies, but in no instance to my knowledge did they lead the way in new discoveries. One exception may be noted and that is in their handling of neurasthenic and shell shock cases. Psychoanalysis was used in a great many of their hospitals and their results were extremely favorable.

The innumerable spas and health resorts scattered throughout Germany and Austria made ideal hospitals for treatment of their war wounded. Austria, in the beginning of the war, was as little prepared for the handling of their wounded as France and some of the other Allied countries, and conditions due to the faulty transportation were comparable to the conditions in Russia.

It was not until I came to France in the later part of 1915 that I was able to see wounded soldiers cared for in a thoroughly efficient manner. I first learned how the Carrel-Dakin treatment was applied and how infected wounds were successfully combated. The method of treatment then in vogue was to have a continuous drip, constantly irrigating the wound in all of its ramifications. The original idea was to mechanically cleanse the wound and bring an antiseptic solution in contact with the

organism in the wound depths and not destroy the new growing tissues. Later, primary sutures and the modified secondary sutures in connection with the improved two-hour flushing system as perfected in the Carrel Hospital at Cowpeys were used.

I found that fractures were treated by suspension with applied extension, in place of immobilization by the cumbersome plaster of Paris splints. This enabled the patients to move about in their beds and prevented ankylosis of proximal and distant articulations, as well as allowing for frequent dressings without pain to the men. Passive movements and massages were applied before bony union had taken place. This prevented many of the deformities similar to those already which had occurred during the first part of the war.

Afterwards I was fortunate enough to work with Doctor Kouindjy of the Val de Grace Hospital in Paris and saw how men were trained to useful occupations, who ordinarily would be doomed to become invalids.

I also studied the methods which had been evolved for the localization and removal of foreign bodies and the extraction of missles directly on the X-ray table with the aid of the fluoroscope. The older methods required forty-five minutes for the localization of a fragment and additional time depending upon the skill of the surgeon, for its removal. Experiments with various vibratory appliances were also instructive and in many instances this was the method of choice employed for the accurate localization of foreign bodies.

These were the three most vital branches of military surgery and I established the newest methods in the French Hospital No. 36 under my charge in Paris, where they were applied with the aid of a very pro-

gressive French staff and proved highly satisfactory.

In closing I wish to emphasize one point: The recovery of the average wounded man depends more upon intelligent nursing than upon any technical procedures of the surgeon in the operating room.

My military surgical career, beginning in the muddy Serbian retreat, ended in a modernized French hospital, with Americanized nursing methods and employing the latest available methods of treatment.

EXPERIENCES OF AN OTO-LARYNGOLOGIST IN THE ADVANCED SECTOR.

BY

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The specialist in the Medical Corps in the U. S. Army is no longer an experiment, and the present war has shown the necessity for the division of the work and the value of the Medical Reserve Corps. Too much cannot be said in praise of the men, high in their special departments, who were able to give their services to the organization of these same specialties under army conditions. It was pleasing to note the courtesy which was shown to me at all times by the members of the Regular Army Medical Corps. The warm friendships formed will undoubtedly continue and a mutual feeling of professional respect will always exist in the future between the regular and the reserve medical officer.

It was my good fortune to be selected as the surgeon in charge of the department of oto-laryngology in Base Hospital 116, and

to have the distinction of the change from civil life into the actual field of war, in the Toul Sector in the eastern part of France, in what I believe to be a record time. Leaving New York March 25, 1918, we arrived in the French village of Bazoilles-sur-Meuse in the Vosges Mountains April 9. Two weeks found us not only in the war, but a part of the military activities of the American Expeditionary Forces, and each responsible for his part of the medical and surgical care of the sick and wounded. The early days were occupied by one and all in organizing the various departments to which we were assigned. A clinic was soon formed in oto-laryngology and this expanded rapidly. Clinic cases alone treated during June were 277, July 695, August 962. The latter month showed, ear cases 360, nose and throat cases 455, ear, nose and throat 37. During the six months beginning June 1, and ending November 30, a total of 3,469 cases were treated by me in the clinic. This did not include the cases treated in the ward and tent given over to oto-laryngology, or the numerous cases throughout the hospital either seen in consultation or treated, in whom the special region played only a minor part in the sum total of their injuries.

The surgical equipment was most extensive and I was able to obtain such modern aids as a Baranychair, a complete Sorenson electrical pump, giving us positive and negative pressure with a Coffin attachment. I was able, thru the courtesy of our Quartermaster, Captain W. E. Mannear, to obtain transportation for a complete bronchoscopy set, a number of mastoid, tonsil and sub-mucous instruments, these being "personal property" and most useful. A Barany noise apparatus taken by me was one of the few in the American Expeditionary Forces.

The commanding officer gave to my department, as to all others, every opportunity for thoro and scientific work. Shortly after our arrival other units followed until a hospital center was formed of seven Base Hospitals capable of treating between fourteen and fifteen thousand patients. Thru the courtesy of Col. J. F. McKernon, M. C., the position of consulting oto-laryngologist was given to me for the center. The oto-laryngologists of this country owe much to the energy of this efficient officer who, by his personal contact, made the work of every oto-laryngologist a pleasure, and who left an enviable reputation as the chief of this service in the American Expeditionary Forces.

One can easily see how the work, as outlined above, would be quite sufficient to occupy the time of one man, and yet, the War Department has other than professional work for its medical officers, and for some reason, best known to the department, an oto-laryngologist was selected as fire marshal for this district, covering many square miles, on whom fell the responsibility of the prevention of fires, as well as organizing and drilling the fire fighting forces. This added vastly to my knowledge of the military side of our life even if not adding to my professional experience. The above is mentioned to show those who are unfamiliar with the work of the Medical Corps, that all the time of the medical officer is not devoted entirely to professional duties, as we understand them, in fact for many, their entire time was of necessity given over to the executive management of the large hospital.

To attempt to go into detail in describing my special work would be lengthy and uninteresting. To those who ask "was it worth while"? I have but one answer, "yes." The opportunity, to give medical and sur-

gical service to those in need, and to study the types of injuries which could only occur in a war such as we have experienced, was unlimited. The time to compile data was not given to me, but the opportunity was there and the lessons taught were most valuable. War surgery did not allow us to adhere strictly to the line drawn in civil hospitals in selecting our cases, especially was this true during the big drives when large convoys of wounded were received. Consequently the oto-laryngologist found himself in charge of most interesting border line cases, many belonging to the domain of the brain surgeon; the cases not only involved extensive injuries to the soft parts and bones of the face but were further complicated by injuries to dura and brain. Cases complicated by eye injuries were common and were taken care of in the ward or operated upon in conjunction with the ophthalmologist. In our hospital this service was in charge of Lieut. Harold B. Chandler, M. C., of Boston. Facial injuries with sinus involvement were frequent, as were also injuries in which foreign bodies were still present in the sinuses, especially the antrum of Highmore. These cases gave us most satisfactory results. They necessitated frequent irrigations and dressings, calling upon the time of both nurse and medical officer. Cases were seen where injuries to or destruction of the external ear had occurred, the mastoid being destroyed in part, or involved in actual opening of the skull. Gunshot wounds of the neck involving injury to, and destruction of the larynx in part were frequent. In passing it is well to mention the steel helmet as a contributing factor in the protection of the brain from a number of injuries which would have otherwise occurred, thus reducing the number of pene-

trating as compared to the non-penetrating wounds, giving us an intact dura mater in our brain cases, and a subsequent lessening of infection and following meningitis.

The helmet, however, has not been a complete protector of the head, and frightful wounds of the soft parts and bony framework have occurred, caused by shrapnel and bullet. The early recognition of the extent and severity of these head injuries, practically all being compound fractures with varying injuries of the pia mater and brain, many complicated by the presence of foreign bodies, gave the surgeon an opportunity for quick judgment as to their operative treatment. The teamwork obtainable by the special staff of a Base Hospital with a neurologist, a brain surgeon, an ophthalmologist, an oto-laryngologist as well as a fully equipped X-ray laboratory, was of great aid to the surgeons and of most decided benefit to the patients. The extensive injuries to face, involving fractures of the superior and inferior maxillae, which at first were treated by us in conjunction with the dental surgeon, were later put in a class by themselves, and transferred to the department of maxillo-facial surgery. I had thought my work would give me an opportunity to study plastic surgery, but I soon found that cases calling for this work were of necessity transferred to the rear before their wounds had reached the stage when closure was advisable.

Not alone were the problems of actual war surgery to be met, but we were confronted by many of the questions so often encountered in civil hospitals. The diphtheria carriers, both nasal and tonsillar, were found to exist even in our advanced area, and a ward for carriers was set aside in one of the Base Hospitals forming our hospital center. Nor could we avoid the

ever present tonsil. Tonsillectomies were condemned by the authorities unless most urgent. The question was so pertinent that I wrote a short paper for a clinical meeting entitled "The Tonsil in Relation to Army Efficiency." Efficiency was our watchword, and every trained soldier taken out of the firing line was a loss, and each day counted, making his early return become a problem which in the case of tonsillitis had to be faced by the oto-laryngologist. It is interesting to note that in one hospital, of which I had temporary charge, with a mixed service representing eye, ear, nose and throat cases, that from April 17th to May 26th there were 158 patients; of these 56 were cases of tonsillitis or $\frac{1}{3}$ of the service. Days spent in hospital were 281 or six days for every case, and these added to the day off duty before and after admission, increased the loss in working days.

The disposition of our cases becomes an important question. It was quite easy to say, and very pleasing for the patient to hear, the letter "D", which meant home, or not fit for further duty in the American Expeditionary Forces, but there were class A, class B. 1 and B. 2, class C. 1 and C. 2, as well as class D and we all felt our responsibility and realized that it was our duty to put every man into the field of work for which he was fitted, and where he was a factor in maintaining the fighting forces in France. The universal feeling of the patient was "to get well and get back for another crack at the Boche," and if possible "to get" the individual responsible for his injury.

A nearby convalescent camp was available for such cases as might be returned to the front area in a short time. The work accomplished in this camp was most excellent.

In closing it may be well said that the government and the individual owe much to the specialist and his work both at home and abroad.

MEDICAL CARE OF TROOPS IN BILLETED AREAS IN BORDEAUX AREA, FRANCE (BASE SECTION No. 2).

BY

HAROLD M. HAYS,
Late Major M. C., U. S. A.
New York City.

In October, 1917, the United States had less than 100,000 soldiers in France. In October, 1918, we had approximately 2,000,000 "over there". Considering the size of the other Allied armies, one can well imagine that the French government was hard put to it to find accommodations for everybody. Any sort of a shelter was being utilized as a billet from the stateliest chateau to the dirtiest sheep-pen.

One of the largest ports of entry for Americans into France was the harbor of Bordeaux. The amount of tonnage dropped there was enormous and well filled the large reserve ware-houses at St. Sulpice where over one hundred large buildings, measuring fifty feet wide by two hundred and fifty feet long were erected. The number of troops, up to June, 1918, coming into this port was comparatively small when one considers Brest, and the majority of them at first were taken care of in the more permanent camps. But then there began an overflow of troops to the Artillery Camp at de Souge and soon it became necessary to prepare billets for one hundred and fifty thousand men.

The selection of proper billets for the men had become a very important matter and the French government had prepared

for just such a contingency long before the war started—that is for its own troops. The mayor of each town or commune had been ordered to keep on hand a list of all houses having spare rooms that could be used by officers and a tabulation of all barns, lofts, empty buildings, sheep-pens and the like for use by the men. It was then merely a matter of the army officer going out to the town, inspecting the billets, estimating the number of men the place could accommodate, handing in his report and waiting for the troops to come in.

The Bordeaux region was fertile ground for the accommodation of troops as far as the American army was concerned. None of the towns had been occupied by the French army in nearly four years and the people—that is what was left of them—had thought that they would be further unmolested. But we had appealed to the French government for the room we needed and they replied by referring us to the French Mission who supplied us with the list of towns we could use and a French Officer who could go around with us and make the kindly peasants understand that we were worth while having.

I had been attached to the Base Section for the matter of a month, during which time I had been detailed on various sanitary jobs at which apparently I made good; for on the 12th of June of last year I was called in to the Base Surgeon's office to take charge of all troops in the billeted towns. I had no more idea what I was to do than the man in the moon and I hardly think anyone else did either. At first it was merely a question of passing on the sanitary condition of the billets in a few towns but the work expanded so rapidly that within a short time it was necessary to have a certain number of assistants.

Our chief difficulty in the beginning was to make the French understand that what was good enough for a French soldier was not necessarily good enough for an American one. In the first place the space allotted to a French soldier measures approximately eighteen square feet—three by six feet—and the estimates for payment for space had to be made accordingly; but it would have to be a very small American to crawl into a space that size. However, according to French law, we had to pay a sou a day



FIG. 1. The author at Biarritz, Sept., 1918.
(about one cent) for that much space and it didn't make any difference whether the space was in someone's attic or in his wine cellar. The officers were usually quartered in separate rooms in beautiful chateaux and if a bed came with the room, the charge to our Government was a franc a day.

As soon as I saw what my work was to be, I made up my mind that it would be necessary to lay down a systematic plan so that we could keep track of the towns seen,

the number of troops each one would take care of, the general nature of the billets, distance from rail head, the quality of the drinking water, bathing facilities and the distance from the nearest hospital. This data was put in the form of a preliminary survey and kept on file.

The next important matter was to draft sanitary regulations which could be given to the commanding medical officer on his arrival for I felt almost sure that his knowledge of sanitation as practiced abroad was practically nil. Conditions were far differ-

troops and therefore the following points are brought to the attention of the Medical Officer:

SANITATION.

- Latrines.* Pit latrines should be dug six feet deep if possible. Latrine boxes of four holes each will be found in each village to be occupied by troops and the size of pit should conform to the dimensions of the boxes supplied. Latrines should be placed near billets holding the largest number of men and at least two hundred yards away from kitchens and wells. Burlap, tar paper or wood will be supplied for latrine housings. Crude oil, sprinklers and straw will be supplied in large enough quantities



FIG. 2. Camp Hospital 79. Chateau at St. Andre de Cubzac used for the 86th Division.

ent than at home, supplies could not be gotten so readily and a man would have to depend on his own ingenuity to supply things that had always been at hand. So before the troops began to arrive I drafted the following sanitary regulations which were later known as our Memorandum No. 8.

June 18, 1918.

FOR MEDICAL OFFICERS OCCUPYING NEW BILLETING AREAS.

Inspection of new areas has shown that they are clean and sanitary. More care must be used when such areas are used by

to burn out pits daily. Oil should also be sprayed around latrines. Covered racks for toilet paper should be placed in each latrine. Two public latrines will be built near main highways with signs indicating their locations.

- Urine Cans.* Two cans will be supplied to each battery (or company). They should be used in billets only at night, and taken away early in the morning. They should be emptied into latrine pits or a special sump and a small amount of crude oil placed in them after washing. They should then be placed in latrines for use during the day.

- Horse Lines and Manure Dumps.* No horses should be placed in men's billets.

The horse lines should be at some distance from kitchens. They must be inspected daily and particular care taken to see that manure will be swept and piled neatly. A great deal of this manure will be removed once or twice a day by civilians but too much reliance should not be placed on them. Suitable dumps must be found at least 400 yards from kitchens and billets.

4. *Refuse and Garbage.* It is particularly important to see that billets and grounds are properly policed. All refuse should be burned as soon as possible. Six garbage cans are supplied for each kitchen. A neat wooden stand should be made for cans. It should be 6 feet long by 2½ feet

should be found or built. Ice-boxes may be supplied or built. It is of the utmost importance that daily inspection of kitchens, mess halls and grounds be made. All meat should be thoroly inspected daily. Fly traps or screening for same will be provided.

6. *Drainage.* Kitchen waste water must not be distributed over grounds. Sumps which will trap the grease can easily be made.

7. *Incinerators.* Small kitchen incinerators should be built in connection with each kitchen to take care of the excess solid garbage and waste from kitchen and around billets.



FIG. 3. From left to right—Lt.-Col. Phelan, Major Gradle, Lt.-Col. Coburn and Major Thompson.

wide and should stand at least 18 inches from the ground. The solid garbage should be separated from the liquid. This can readily be done by making a sieve out of half a coffee barrel in the bottom of which are bored half-inch holes. Four wire handles can be made to hold the sieve in the top of the G. I. can. The solid garbage can then be emptied into a special can. Tin cans should be collected separately, flattened out and burned. G. I. cans should be kept scrupulously clean both inside and out. Some of the garbage may be collected by civilians under supervision. The rest should be burned. Liquid garbage may have to be taken care of in a special sump some distance away.

5. *Kitchens.* Kitchens should be located near pumps or wells. Proper storeroom

8. *All Drinking Water Must Be Chlorinated and Placed in Lyster Bags.* Most of the wells are in good condition at present but with the incoming troops using pit latrines extra care must be taken. Wells marked "not suitable for drinking purposes" should never be used.

9. *Milk.* Experience has shown that the fresh milk in this region is not suitable for drinking.

MEDICAL INSTRUCTIONS.

1. A suitable building to be used as a Hospital or Dispensary will be found in each town.

2. All cases which cannot be treated at Dispensary or in billets and needing hospital attention will be sent to Base Hos-

pital No. 6 at Talance. If transportation is not available, ambulance will be sent to Infirmary on request of Medical Officer by telephone.

3. A prophylactic station must be established at once in each town in which there is a medical personnel. Notice of its location should be placed on the bulletin board of each battery.

4. In case of doubt as to Sanitary or Medical Regulations, it is suggested that you confer with the Base Surgeon's office.

HENRY A. SHAW,
Colonel, Medical Corps;
Chief Surgeon.

Shortly after the inspection of the first towns in the Gradignan-Cestas region, some Artillery Regiments moved in and our troubles commenced at once. Everyone was green and unfortunately the Medical Officers had lived in luxurious camps over in the States and had little knowledge of practical sanitation, particularly as it was practiced in France. Fortunately the water supply was fairly good and the regulations were very strict about the use of Lyster bags. Yet men would go to the wells to drink no matter what the regulations were and to make matters worse they began to fill up on the rotten *vin blanc* and *vin rouge* which these villagers supply. It is a beverage that is not fit for an American stomach unless taken in small doses in the beginning. Moreover the men were not used to sleeping in quarters such as we supplied them with. All we could give a man was a certain floor space and the promise that his tick would be filled with straw as soon as we could get it to him.

I had arranged with the Quartermaster in Bordeaux that all billeted areas should be supplied with sanitary material such as latrine seats, G. I. cans, urine cans, crude oil, etc., before the troops came in. And while the number of towns to be used remained small, this was easy enough to do.

But the time soon came when he felt that too much material would be stored away and so he waited until we heard that troops were coming in before placing out the things that were needed. Considering the scarcity of everything abroad, this was a wise procedure from his point of view but often it meant that troops were in towns one or two days or longer before they got the things that were actually needed.

On the arrival of an organization, I would immediately go out to interview the Medical Officer in charge and see that he understood what was required of him. Most of them I found to be very intelligent, perfectly willing to learn and extremely anxious to take good care of their men. The ability to do this depended a great deal on the cooperation a medical officer could get from his line officers most of whom, I am glad to say, knew the sanitary end of the game very well. I cannot commend too highly the excellent work of Major English of the 60th C. A. C. who was able to get results mainly thru the encouragement he had from his fellow officers. His kitchen was a model for the field and met every requirement admirably.

However, there were some officers whom I interviewed who seemed unable to understand the essentials of sanitation. They were given drawings and explanations galore and promised to do everything, but the next time I came around, things were as bad as ever. Numerous excuses were always given but excuses do not go in the army. At times it was hard to be diplomatic and keep my temper particularly when I got hold of a man who thought he knew more than I did and tried to teach me. I recall one instance where I came up against an officer who had placed his kitchen against a French house within ten feet

of a manure pile. The flies were there in millions, first feeding on the manure and then on the food of the men. Moreover his own latrines were within smelling distance. When I remonstrated he tried to tell me that if I would get him some muslin to cover the eatables, the flies would not be able to get at them. It never occurred to him that it might be possible to remove the manure and place his latrines some distance away. I insisted on his carrying out my orders but it was only when I informed him that I was going to take up the matter with higher authority that I got the results I wanted.

The Base Surgeon's Office in Bordeaux, under the able administration of Col. Henry A. Shaw, was extremely anxious that the incoming troops should have the advantage of being taken care of in the best manner possible. First came up the question of inspecting the town to be used. Then arose the problems of supplying the organizations with proper sanitary supplies and medicines and finally the careful supervision of the territories to keep them constantly in a healthy condition so that with the change of organizations, there would be no danger of spreading disease.

We have already spoken briefly of the sanitary supplies needed. The chief things to consider were the proper placing of latrines with the obtaining of fly-proof boxes, and the disposal of garbage and waste. One only has to be around a camp for a short time to realize how necessary it is to supervise such matters carefully; for the health of the troops, particularly in summer time, is in direct proportion to the amount of filth. This fact was demonstrated in the American camps over and over again. It is bad enough to come into a French village where manure is prized so highly that the

inhabitants will go into the streets with a pail in hand and pick it up out of the road, but when one adds to that the excess garbage from kitchens that feed thousands of men, he can get an idea of the situation that presents itself.

As the climatic conditions were practically the same all over this region, it is reasonable to suppose that the number of flies and the consequent spread of disease depended upon the local conditions. In a town like St. Jean de Lac where a large Artillery organization was stationed, the flies were comparatively few and therefore this Regiment had little diarrhea or dysentery. The kitchens were placed out in the open where they were kept scrupulously clean. The latrines were more than the required distance away and as the latrine boxes supplied were not fly-proof, the men set to work to make their own. The urine cans that were placed in the latrine housings were well covered with crude oil and a soldier was placed on guard at each latrine to see that the men put the seat covers down and that they kept the place clean. Sumps for the collection of liquid garbage and grease water were properly built according to the plan I gave them, a drawing of which appears as Fig. 4. No material is needed for this sump and if proper care is taken, it will last for months. Moreover most of the men were placed out in "pup tents" so that they did not have to use undesirable billets.

Now let us view the opposite case. An organization of the same size was located but a short distance away. The Medical Officer was careless and could not get the cooperation of his line officers. The kitchens were located behind French houses sometimes within a few feet of an old French privy which had not been cleaned out in years. Alongside of one kitchen was a

road which the cows used going to and from the barns and on which they would deposit their dung. No one would clean this up. The latrines were located near the kitchens and were far from fly-proof and no one was around to see that they were properly used. Either a seat cover would be thrown back or would be off its rusty hinges and toilet paper would be flying around everywhere. There was hardly a day that we would not get a report of from five to twenty cases of diarrhea or dysentery. I had to inspect this organization frequently and never did I see it in the sanitary condition that it should have been. Two or three

solids and liquids. A coffee barrel was sawed in two, holes bored in the bottom, suitable wire handles attached and this was placed inside the galvanized iron garbage can. The garbage was thus strained and only the solid taken way, the liquid being thrown into a sump. Sometimes I found that the civilians did not come regularly for their garbage, so I suggested that instructions be given them that they could have it only if they came at meal times in order to keep it from collecting around the camps.

The billeted area spread rapidly so that we had under our control every town and hamlet within twenty-five miles of Bor-

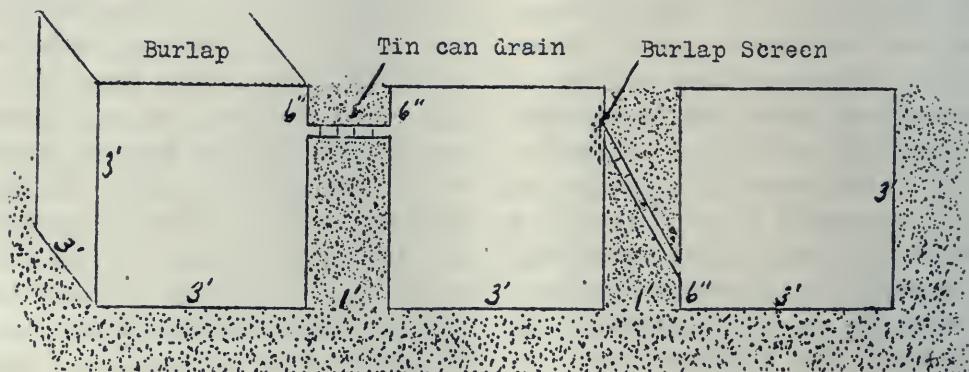


FIG. 4. Special sump for kitchen grease (cross-section).

times I had explained to the Medical Officer the way to build a grease trap but it suited him better to dig a big hole in the ground in which the kitchen police threw everything from a shin bone of a cow to empty, greasy tomato cans. Meanwhile, the flies had increased to so great an extent that we could no longer use the town for other troops.

Most of the garbage was collected by civilians who need it badly for their pigs. At first the solid and liquid garbage was given away but I soon learned that the people who took it in their narrow ox-carts were likely to slop it along the roads, so I devised an arrangement for separating the

deaux. After the first experiment with the Americans, the French people got to like them so well that they were disappointed when a town was emptied. During the day the men were kept drilling and otherwise occupied. They swept the towns clean and showed the French the value of cleanliness. They played with the children and helped the women with their work. At sun-down the band would get out in the village square and play for an hour or so. Every peasant for miles around would get there somehow and with a smiling face would show the pleasure he felt at having *les soldats Americans* there. At night the men would quietly go to their billets and the peace of

the little hamlet would be undisturbed until morning.

One can well imagine that the labors of our office were increased considerably when many of these villages began to be occupied. The problem of evacuation of sick to the nearest Base or Camp Hospital became a serious one. In each town we had attempted to find a suitable building that could be used as a Regimental Infirmary but oftentimes the places selected were far from ideal. Moreover, most of the organizations had lost their medical equipment or it had been taken away from them at the Port of Debarkation where they were told that they need not worry as they would always be where they could get supplies. As I knew the necessity of conserving supplies and that at the same time these billeted organizations could not get along with the little they had, I made up a unit box of supplies to meet the emergency with which they were able to get along very well. We could not attempt to take care of the seriously sick and major operative work was out of the question. We had an ambulance call each morning at each of the Infirmaries, but if an emergency case came up at night we were up against it for most of the organizations were without transportation of any kind. They did not even have a motor cycle and passenger automobiles were a luxury not to be thought of. I recall one night when two cases of appendicitis occurred in one regiment about fifteen miles from town. The Medical Officer could not get a Base Hospital on the telephone or telegraph because the offices closed down at six o'clock. He had no transportation of any kind. He sat on the side of the road for hours, hoping that some kind of a machine would pass. Fortunately a French taxi came along and with the help of the

driver and twenty dollars he got his patients into town. Needless to say he never got his money back. On account of this lack of transportation, it was extremely difficult to carry out proper sanitary regulations for the companies or batteries were sparsely spread out and in one instance I know that the Medical Officer had to walk twenty miles a day to cover his ground.

However, our problems were comparatively simple until the "flu" epidemic reached us about the middle of September. I had been detailed to Biarritz to take charge of the Officers' Convalescent Hospital there. Peremptory orders came for me to get back to the office in Bordeaux as the 86th, 84th and 34th Divisions were reported to be on the way to our Base Section and were to occupy territories north, east and south of Bordeaux. The 86th Division had come into St. André de Cubzac before its advance party and when I struck them they were running around like a lot of lost sheep. They had been hard hit by the influenza epidemic on the way so that some of their men had died at sea and others had been left at hospitals along the way. To make matters worse they had arrived during a spell of rainy weather and so it had been impossible to issue dry straw to the men, many of whom had been drafted less than three months before. As soon as they came into a town, they would throw themselves down on the damp floors with the result that before long a goodly number were down with temperatures. I visited one regiment where out of twelve hundred men, twenty-five per cent. reported at sick call one morning with temperatures of over 101. Of course not all of them had influenza but enough of them had it to make us worry.

The 84th Division had been sent to a new

billeting area between Montpont and Perigeux of which I had never heard. Apparently this region had been surveyed by G. H. Q. (at Tours) and no notice had been sent to us that it was to be used. The only way that I found out that men were there was when I happened to pass thru one of the towns on a tour of inspection. You can imagine my dismay to find out that I, at least the Base Surgeon's Office, was to take care of thousands of troops for which we were not prepared. This leads me to a criticism that I often had occasion to make. Instead of General Headquarters realizing that they had responsible men in their various sections whom they could trust implicitly, they very often sent officers down from Tours to work independently on exactly the same problems we were engaged upon. Sometimes this duplicated the work and at other times it lead to serious embarrassment, as for instance when I was sent out to pass upon the suitability of certain buildings to be taken over as hospitals. I would report that a certain schoolhouse was not suitable and have the report telegraphed to Tours. Then a young officer would come down and, after his inspection, make an opposite report. Either I was to be relied upon or else I wasn't fit for the job. In this instance, as long as I had been placed in charge of the billeting work in that Base Section, Tours should have left their hands off. As it happened, no one knew who was responsible for that area being used, with the result that a re-inspection had to be made by our office after the troops were already quartered in towns that were not half large enough to accommodate them all. If the Division had come in at any other time, all might have been well; but they also had been hard hit by the epidemic and it was

many a day before we were able to get things straightened out.

Major William L. Moss, the epidemiologist of our office, and I went out to visit the various regiments and finally agreed on certain points that are contained in an exhaustive report of his submitted to the Chief Surgeon, Base Section No. 2 on October 8, 1918. This was based on our observations in the 86th Division and was supplemented by the report of Lieut. C. A. L. Binger who was sent out to study the situation in the 84th Division. Out of about 23,000 troops Lieut. Binger found approximately 1,100 cases of influenza in five of the organizations out of thirty-four. His advice is incorporated in the following memorandum of the Division Surgeon:

TO LIMIT THE SPREAD OF SPANISH INFLUENZA
AND BRONCHO-PNEUMONIA.

1. All soldiers complaining of chilly or feverish sensations, headache, backache or general bodily pains, especially if they have a temperature of 99 degrees F. or over, should be immediately segregated from their fellows.
2. Men should be ordered to cough, sneeze and spit in their handkerchiefs.
3. Overcrowding should be constantly guarded against and whenever possible pup tents should be used.
4. It is more important for Medical Officers to keep constant vigilance on the well than to spend all their time on the sick.

THE REPORT ON PREVENTIVE MEASURES IS
INTERESTING.

For the purpose of recommending preventive measures a tour of inspection was made. Most of the chief billeting centers were visited.

In some cases billeting conditions appeared satisfactory. For example, at St. Astier some of the troops were quartered in great concrete sheds open at both ends with dry concrete floors and ample access of both sun and air. Headquarters com-

pany were in dry, open sunny barns with 40 square feet of floor space for each man. It is to be noted that this regiment had the lowest disease incidence.

The highest was among the 309th Engineers at St. Germain, where 236 cases and 2 deaths have already occurred. Here the billeting conditions were shamefully poor. Damp, dungeon-like cellars with no sunshine and no possibility of ventilation and floor space less than 12 feet per man were used.

The 338th Infantry, where the infection is increasing, were housed at Montpont where were small, dark, damp stone quarters with no access of sun and no possibility of ventilation. Here the Regimental Surgeon had moved the sick out into individual shelter tents. These men were questioned during a rain storm and had no complaint from cold or wet.

It was obvious that a high morbidity rate and poor billeting conditions went hand in hand. The Inspector General was in perfect agreement and independently recommended to the Commanding General that the troops be put out in shelter tents.

Recommendations were made to the Division Surgeon that all billets that did not afford 40 feet of floor space per man, had no access or direct sunshine and did not have at least two portals for ventilation should be condemned and men moved into other billets meeting these requirements or into shelter tents.

At first men who were seriously ill were transported to the nearest Camp or Base Hospitals but we soon discovered that more complications, like pneumonia, developed among the patients who were moved than among those who were taken care of locally. Apparently what the men needed more than anything else was plenty of fresh air, warm blankets and nourishing food—all of which could be supplied them locally. So I arranged that each town be provided with a hospital tent large enough to care for twenty patients and immediately set about to find a chateau in each locality that could be converted into a Camp Hospital. A chateau near Perigueux took care of the 84th

Division and at St. André de Cubzac, we took over the Chateau de Bouilh for the sick of the 86th Division.¹ After that in less than no time we had the epidemic under control and I am sure the number of cases of pneumonia that developed and the number of deaths compared very favorably with the number in the States. It was a noted fact that the complications invariably occurred in men who were less than three months in the army.

When one takes into consideration the rapidity with which the work had to be done in France under handicaps that it seems almost impossible to surmount, he cannot help but feel that our soldiers were taken care of remarkably well. Almost without exception extreme conscientiousness was shown by the Medical Officers who deserve a great deal of credit for what they accomplished. And here again, let me say that if it had not been for the open-mindedness of the "Regulars" who were more than willing to meet us half-way, we would have fallen down badly. As it was, the most cordial cooperation was apparent and many a suggestion of a "Reserve" man was immediately taken up.

2178 Broadway.

Special Wounds.—When a portion of the flesh is completely torn away, dress daily with wet dressings until granulation is well started; skin graft if necessary. When tissues are so injured that they will slough, keep on a wet dressing and trim them away as they are ready. You will thereby (a) avoid sepsis; (b) get a minimum of bad odor; (c) have little or no pain; (d) promote rapid healing.—*International Jour. of Surgery.*

¹ Fortunately the 34th Division did not arrive in the La Brede area until long after the Division Surgeon, Lt.-Col. Coffin, was able to suitably provide for them.

REGIMENTAL MEDICAL WORK.

BY

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It seems scarcely possible that anyone could be interested in regimental medical work other than that in action. The daily inspection of men, quarters, kitchens and latrines, the training of hospital corps men and the other details that fill in the time of a regimental surgeon do not sound at all interesting, yet they are tremendously important in the building and welding into a unit of the 3,700 officers and men that make up a regiment of infantry. I doubt if there is anyone whom the Commanding Officer is more pleased to see wideawake and reliable, than the surgeon.

Sanitation was greatly emphasized in the American army and many are those who have been "canned" for delinquencies therein, from platoon commanders to regimental K. O.'s. If then the regimental surgeon could keep battalion and company commanders on the job and give results without disturbing the Commanding Officer, that surgeon was making good. By cajolery, by threats and by merely suggesting and advising it was done and only results counted.

The system most commonly used in camps in the States was the daily inspection by the surgeon of as much of the whole regimental area as he could cover and of each battalion by the battalion surgeon. Reports were made in writing to the surgeon by the battalion junior and copies to, or a verbal talk with, battalion and company commanders. The greatest responsibility, however, rested with the surgeon and he was distinctly not on the job if an unsatis-

factory condition remained uncorrected more than a day or two unless he had made recommendation thereon to the K. O. The division sanitary inspector with his keen eye and inquisitive mind would quickly find some of the following if they existed: unclean kitchen knives, cooks not in uniform, ice-box with an odor, improperly balanced menu, food inadequately protected against flies, cracks in table containing food debris, latrines not oiled, area inadequately ditched, etc., etc. It makes me smile now to look back on those reports and how important they were to life then. To have a clean camp, a low morbidity rate and a low venereal rate was the pride of every regimental medical officer. We spoke with great glee at mess after the weekly "short arm" of the low venereal rate and I fear that many men were given "light duty" with the connivance of the company commanders, to keep down the non-effective rate, particularly if another regiment in the division were approaching our good mark.

To be really successful at his game the regimental surgeon and his juniors had to be more military than professional. He should have the respect of all and it was necessary to know the Blue Book and the customs of the service to hold to it. I have seen more than once, a sanitary detachment present a better alignment at review or in "march past" than the rifle companies. The wise surgeon, with the consent of the regimental commander, weeded out his hospital corps men, choosing carefully from the companies, on the plea, and correctly, that in action they would often work alone on the field and must be competently intelligent, yet big enough to be capable litter bearers.

In France, nearness to the enemy made other matters more important than sanita-

tion. There in the trench work in Alsace the surgeons' principal worries were quick first aid and evacuation of wounded and such things as supplies of A. T. S. splints, etc., care and proper maintenance of Lister bags, details for raids, etc. It was fine preparation and schooling on a small scale for the work later, the big work in the Meuse-Argonne.

Surely the tables of organization will be rewritten some day and I imagine that every M. O. who has done regimental work in severe action is mighty curious to see what changes will be made. That there is room for improvement few will dispute I believe, and I do not doubt that within another year we would have made many of the changes that the British and French had found wise and profitable.

We "jumped off" from the old French first line trenches, attacking northward, parallel with the Meuse, over a terrain of forests and steep ravines that made evacuation at times a critical problem. I believe the most important points were to keep everyone informed of the axis of liaison, the ambulance company in the rear and each battalion medical officer and enlisted man; *secondly*, to keep a battalion aid post centrally established and to attempt nothing more there than the first-aid packet if not already applied, splints as necessary, and the important hypodermic of morphine, doing tags only as time was found, but the greatest importance rested on *speed* in getting the wounded back. In order to do this most effectively when the line was temporarily stationary, advanced company posts were made, generally at the company P. C. When pushing forward, the battalion detachment was to follow with the support companies spread out with the battalion, having been informed of the terrain as far as that was

possible from maps. Most emphatically was it impressed on everyone as to the location, or anticipated location of the battalion aid post. From there, ambulance company litter bearers or in some instances ambulances relieved the jam.

It was appreciated before the "jump off," that the litter bearers of the sanitary detachment would be inadequate in numbers, so an order was obtained detailing four men from the rifle companies for that work. This plan did not go well, as the company litter bearers practically all disappeared either to the front or the rear, the company commanders naturally not having picked their best men to be given to the medical department. It was impossible to keep tabs on them since they were not known well enough by the medical personnel and excepting for the great aid in litter bearing furnished by prisoners, the battalion evacuation would have fallen down on more than one occasion.

For the information of the uninitiated I should state that there are seven medical officers, three dentists and fifty-one enlisted men in the sanitary detachment of a regiment of infantry. If the regimental surgeon keeps two at regimental P. C., the Sgt. 1st. Cl. and an orderly, it will give each battalion two medical officers, a dentist and about sixteen men. If the battalion surgeon keeps two or three as assistants at battalion aid post it leaves obviously too few men to act as litter bearers for one thousand attacking troops.

Too little has been written and said of the litter bearers in the fighting. They made their carries under the most difficult and trying conditions, working in pairs or fours, going slowly and carefully thru the most intense barrages of artillery and machine gun fire, constant marks for snipers, unable to "flop"

when the big ones landed near and without that great moral help of being in with the rest. Litter bearers also are not keyed up to the exhilaration and excitement of the riflemen, naturally, being unarmed, yet brave things were done repeatedly, and relatively very few received the awards that were their due when those things were given out.

We all, in regiments, envied greatly the men in hospital work and their opportunity to keep their touch and even to do new things, yet now that it is all over we would not give our memory of our own work there, where things were happening, for the most wonderful posts and opportunities back of the lines.

SOME MEDICAL PROBLEMS OF AVIATION.

BY

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Aerial warfare developed many medical problems for which there was no precedent and the Air Medical Service was forced, therefore, to cope with many new and unforeseen conditions. In the beginning of the war it was not realized that the medical requirements of the Air Service were different from those of the Line. In fact, the Air Service was often used as a haven of refuge for battered and worn-out infantrymen. This was done with the supposition that the duties of an aviator were rather easy, since he sat in a ship which took him around. The feeling that the physical demands on the flier were much less than those on the infantryman or artilleryman

was soon changed by the unusually large number of casualties which occurred in the Air Service. It became apparent that the terrific strain of military aviation made extraordinary demands upon the physical stamina of the flier, and steps were taken to select, thereafter, only those who, from a physical standpoint, appeared to be best fitted. Originally the medical care of the flier differed in no way from that of the ordinary soldier. He was simply regarded as a member of the same general organization. Experience soon demonstrated that each aviator was a fighting unit in himself and any defect, therefore, physical or otherwise, affected not an individual but an entire "combat unit" of the Army. This was especially true in the early part of the war when aerial warfare consisted of one aviator fighting one other aviator. Profiting by the experience of the Allies, the Air Medical Service of the United States Army adopted as its keynote *the study and treatment of the aviator as an individual*. The activities of the Air Medical Service naturally subdivided themselves into three groups: Selection, Classification and Maintenance.

Selection.—In the selection of the flier it was deemed advisable to accept only those who possessed the very best physical and mental equipment. It was easy to maintain the highest standard because of the large number of volunteers of the very best type who were making great efforts to enter the Air Service. A high standard was set, not for the reason that only such highly qualified men could learn to fly, but rather to avoid the waste and delay which the training of men of a lower standard might entail thru their breaking down under the terrific strain of military aviation. The candidate was required to withstand the

most searching physical examination in respect to his nervous, cardio-vascular, respiratory, genito-urinary and muscular systems. In addition, his eyes were to be practically perfect, his ears, nose and throat without any noticeable defect, and his vestibular apparatus normal.

This work of selection was done by Physical Examining Units organized in various universities and hospitals by especially trained officers of the Air Medical Service. The volunteer physicians on these units were specialists in their various branches, selected solely on their qualifications for this work. Thirty-five of these units were organized thruout the country and later, thirty-two more in various military camps. By careful standardization and supervision the work of the various units was kept as uniform as it was humanly possible to do. Because of the high standard set and rigid examination, approximately 30% of those presenting themselves for this examination failed to comply with the physical standard set by the Air Medical Service (Form 609 A. G. O.). Failure to meet the visual requirements was the chief cause of rejection. The commonest eye defects were:

Lack of visual acuity	3.3%
Defective color vision	1.0%
Muscle imbalance .....	.7%
Defective stereoscopic vision..	.5%
All other eye defects .....	.4%

Disqualified because of visual defects	5.9%
Disqualified because of nose and throat defects	2.0%
Equilibrium tests	2.0%
Cardio-vascular system	1.5%
Urinalysis .....	.4%
All other defects	1.9%
Disqualified in two tests	7.0%
Disqualified in three or more tests	8.6%

As a result of the system of Physical Examining Units, there was always available for training an ample number of men physically qualified for any demands which military aviation might make. Possibly a few men were rejected who might have become good fliers but, if so, their number was far too small to affect in any degree the efficiency of the Service, however great the disappointment of the individuals concerned. While a more or less perfect physique was one of the absolute requirements in a candidate for the aviation service, that of itself did not assure his admission. After the Physical Examining Unit would certify an individual as acceptable from a medical standpoint, he was referred for an examination by a board composed of educated practical men who considered his mental and general fitness.

The Air Medical Service realized from the very beginning that no set of tests, physical or psychologic, could possibly forecast with absolute certainty who would and who would not make a perfect aviator. But because the training of one entailed such a large expenditure of money and time, it was deemed advisable to begin at least with as perfect a specimen as it was humanly possible to choose. Re-examination of the fliers at intervals during their training disclosed very few cases where men, who did not possess the physical qualities required, had been accepted by some Examining Unit.

Classification.—As more powerful motors and improved designs of airplanes were produced, "the ceiling," or extreme height to which a plane could be driven, has gradually been raised until now it is in the vicinity of 30,000 feet. At heights exceeding 15,000 feet it was found that many fliers apparently in good condition fainted or became incapable of performing the co-

ordinated movements necessary to maintain control of an aeroplane and as a result crashed. Medical research proved that this physical and mental disability was due solely to the low percentage of oxygen en-

ing apparatus which was perfected at the Medical Research Laboratory at Mineola, L. I., and installed at the various flying fields (Fig. 1). By means of this apparatus, the aviator re-breathes the air contained in



Courtesy of the Naval Consulting Board.

FIG. 1. Re-breather.

countered at high altitudes, and it became necessary to examine and classify fliers as to their ability to withstand the effects of the oxygen want encountered in this type of flying. This was done in the United States Air Service by the use of a re-breath-

a tank and gradually consumes the oxygen, the carbon dioxide being absorbed by passing the exhaled air thru an alkali. This, in the course of 25 or 30 minutes, reduces the oxygen to about 7% or the equivalent of an altitude of 28,000 feet. While undergo-

ing the test his cardio-vascular and respiratory systems are under continuous observation and the subject is constantly performing three different tasks which require close attention, discrimination and coordination. The test is ended at the point at which he becomes inefficient. By this and other data obtained during the "Unit Run," as the test is called, the aviator is classified as to his ability to fly at high altitudes. It was found that only 61% of carefully selected fliers were able to exceed an altitude of 20,000 feet with safety, 25% were unable to exceed 15,000 feet, while 14% became unsafe at 8,000 feet. It was also found that constant flying caused a gradual deterioration of the flier in this respect and that he gradually became "stale." A peculiar feature of this susceptibility to oxygen want, whether caused by excessive altitudes or long continued flying, is that it is not recognized by the victim himself, who fails to realize any deterioration in his efficiency. Consequently, it became necessary to retest fliers at stated intervals in order to certify to the Commanding Officer only those who were "fit." As the different types of planes, bombers, scouts, etc., developed and military aviation became more complicated, it was also found advisable to classify fliers according to their adaptability for certain types of work, as far as possible. Thus it would have been unwise to select men for scout work who could not attain an altitude over 8,000 feet without danger of fainting or otherwise becoming incapable of controlling their airplane, as this type of flying involves combats at the extreme heights to which a machine can be driven and requires the maximum of mental and physical alertness at all times.

Maintenance.—Maintenance of the efficiency of the flier at its maximum con-

stitutes the third division of the work of the Air Medical Service. Military aviation involves such tremendous strain on the circulatory and nervous systems, in addition to the disabilities arising from low oxygen want, that constant watchfulness must be exercised to detect the first symptoms of impairment which, if overlooked, are apt to lead to complete inefficiency and disaster. The importance of this work can be readily understood when the records show that less than 2% of the loss of aviators has been due to the Hun and that defects in the plane do not at the present time account for more than 8%. This leaves 90% of the loss to be accounted for by troubles in the aviator himself.

In the United States Air Service the medical phases of this work are in charge of a specially trained medical officer at each flying field known as the Flight Surgeon, whose duties are to act as medical advisor to the Commanding Officer and to maintain the mental and physical fitness of the aviators on the field. In this work he is assisted by a Physical Director who, like the college trainer, sees that the fliers get such physical training as will keep them in good condition. There is also provided a nutrition officer whose duty it is to see that the "mess" is of proper quality, to provide a modified training table suitable for the work the aviator is compelled to do, and to provide for such individual cases as may require special dietetic treatment. The facilities of the Medical Research Laboratory are at the disposal of the Flight Surgeon for any special examination he may deem necessary in doubtful cases. This ready availability of expert medical examination together with the close personal relationship, which is fostered between Flight Surgeon and the flier, enables him to dis-

cover early signs of staleness or beginning inefficiency and take measures for their correction before they can result in disaster to the pilot.

It is of course impossible in this paper

To counteract the effects of oxygen want at high altitudes, an apparatus was devised by Col. George S. Dreyer for the Royal Air Force which automatically supplies the aviator with the necessary amount of oxy-

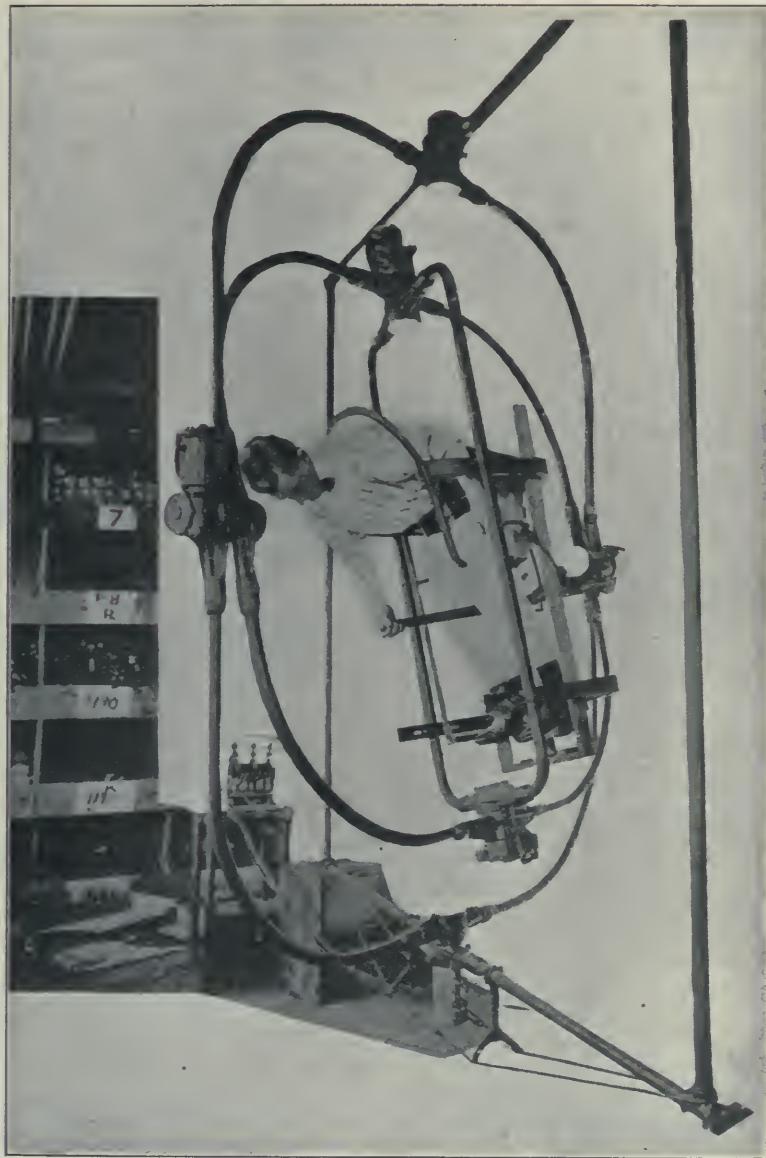


Courtesy of the Naval Consulting Board.

FIG. 2. "Ruggles Orientator."

to describe *all* the activities of the Air Medical Service, but one might mention a few of the recommendations The Medical Department made with a view of reducing that "ninety per cent." of mishaps among aviators.

gen at various altitudes. This apparatus, with slight modifications, has been adopted as standard in the United States Air Service and has given complete satisfaction. To show the efficiency of oxygen apparatus, it is stated that one British squadron sup-



Courtesy of the Naval Consulting Board.

FIG. 3. "Ruggles Orientator."

plied with the Dreyer apparatus has been performing six times the work of any similar organization working without such an oxygen apparatus.

The large number of head injuries brought out the suggestion that the cowl

be so cut out as to give eight inches more room in front. A report from the Royal Air Force, Canada, states that since this change was made injuries of this type have been practically eliminated. Another suggestion was to fasten the safety belt with

rubber shock absorbers in order to reduce the number of injuries to the abdomen and chest. The intense cold of high altitudes was overcome by designing electrically heated clothing. The eyes were protected by suitably tinted goggles, so constructed that it was impossible for splinters of glass to be driven into the eyes.

Another problem of peculiar importance in aviation was that of dizziness. Since flying generally entails so much swaying and whirling, it is not infrequent that the aviator suffers from rotational vertigo. This is especially true when any of the evolutions known as "stunts" are attempted. In actual combat the expert "stunt-flier" has a decided advantage over one who was not so expert in the various gyrations of his plane. Since rotational vertigo is a perfectly normal phenomenon which manifests itself whenever a normally-physically-equipped individual is subjected to whirling, this phase of aviation was carefully studied by the Otologic Department of the Medical Research Laboratory. The well known physiologic principles that rotation with the head held in a certain position induces vertigo less distressing than similar rotation with the head in other positions enabled the Otologic Department to formulate rules which, if observed by the aviators during their stunts, nullified the disturbing effects of the vertigo. By far the most important thing, however, was the employment of apparatus whereby individuals could be rotated or whirled in different planes—all designed to simulate conditions during stunt-flying which trained the aviator to interpret properly the various vertigo impressions and thus lose all sensitiveness to rotational vertigo.

An otologic machine, lately adopted by this Government, known as the Orientator

(Fig. 2) enables the flier to be trained in all sorts of aerial maneuvers without actually leaving the ground. He thus becomes accustomed to the whirling incident to stunt-flying and learns to manipulate his controls with accuracy and delicacy in all sorts of unusual positions, such as whirling while upside down. This will greatly shorten the time of training and save many lives and ships.

MANAGEMENT OF VENEREAL CASES IN CAMP: RENDERING INFECTED SOLDIERS NON-CONTAGIOUS.

BY

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To prevent transmission of venereal disease to innocent persons requires care under the best of circumstances. This problem assumes great importance in camp where many of the conveniences of home life are necessarily absent. The necessity of rendering the diseased men non-contagious becomes manifest when we say that 804 out of 1,954 newly drafted men from the District of Columbia and Baltimore were found to be infected with venereal disease, on their examination in camp. Such a large percentage of infected men may be unusual but was found while one of us (S.) was in charge of the genitourinary division of a base hospital.

Both for the purpose of lessening the ravages of disease in the individual as well as to render the men fit for active service without being an ever-present danger to

their comrades, it was necessary to check the disease process and to render the men innocuous to others as rapidly as possible. The results obtained were so favorable as to be worthy of report.

With chancroid, the requirement was simple; the lesion had to be healed. With gonorrhea, the test of fitness for active service was the absence of the gonococci from the urethra and its adnexa. With the syphilitic cases the problem was more complex because of the likelihood of recurrence of superficial lesions. In this group the requirements were that the patient must be free from all clinical symptoms or signs of syphilis, continuously for three months, before he was considered fit to be discharged from the development battalion.

The results obtained in the treatment of acute gonorrhreal urethritis were better than those we obtained among civilians. This may have been due in part to a slight difference in the intraurethral treatment, a description of which may be of interest.

The routine treatment we used in civilian clinic and hospital was that which is commonly used at present. The modified diet, forbidding of alcoholic liquors, curtailing the use of tobacco, advice as to hygiene, sleeping on the side with light covering to prevent erection, local dressing of the part so as to permit of free drainage while protecting the clothing from being soiled, warning against carrying the infection to the eyes of the patient or transmitting it to others were those usually adopted.

The internal medication included the administration of antiblennorrhagics, of drugs to dilute the urine when that was too concentrated and to keep the urine neither too acid nor alkaline. The favorite antiblennorrhagics were sandalwood oil, in ten minim doses three times a day after meals,

early in the disease till the acute purulent stage was past, and the oleoresin of cubeb or the balsam of copaiba in similar doses in the subacute stage of the disease. Alkaline diuretics like the acetate of potash were administered when the urine was too concentrated or too strongly acid; sodium benzoate, boric acid or sodium salicylate in fifteen grain doses when the urine was alkaline; these were taken well diluted between meals. Where painful erections at night were not readily controlled by simple measures such as pouring cold water on the part, etc., or were so frequent as to disturb the patient's rest, bromides were administered before retiring, and where that did not suffice chloral was given.

The routine local treatment depended on the stage of the disease. In those cases which presented a hyperacute inflammation, where the glans or the meatus was swollen, the local treatment consisted only in soaking the penis in hot water for ten or fifteen minutes several times a day, or the application of lead and opium wash to the organ. In twenty-four or forty-eight hours the hyperacute symptoms subside and the patient is ready for systematic treatment of the urethra. This consists of the injection into the urethra of organic silver preparations which seem to have a selective action on the urethral mucous membrane in repressing inflammation due to the gonococcus, while pus is being secreted; and injecting astringents to tone up and heal the mucous membrane after the purulent condition has disappeared. During the period when the pus has been largely diminished in amount and the discharge is becoming more and more mucoid, the organic silver preparation is being replaced gradually by the astringent injection.

The organic silver preparations which are

most commonly used are protargol and argyrol. The first week of the disease we prescribe a hand injection of a $\frac{1}{4}\%$ solution of protargol to be injected three times a day, after voiding urine to clear the urethra of any pus that may be present, and to be retained five minutes. By the end of the first week the urethra has become accustomed to the slight irritation of this solution and its strength is increased to $\frac{1}{2}$ of 1% . This is continued as long as the organic preparations of silver are indicated.

By the end of the second or during the third week, the tissues of the urethra below the surface (except the urethral follicles) are cleared of the gonococci, the discharge has become mucopurulent and the mucous membrane is in a state of catarrhal inflammation. The protargol injections are replaced gradually by a simple astringent solution consisting of zinc sulphate and lead acetate, one grain of each to the ounce, which is retained one minute. At first one of the protargol injections per day is substituted, then two, and by the time that the gonococci have disappeared from the discharge, which is now almost entirely mucoid, the astringent is the only injection used. This injection is increased in strength after the first week to two grains each of the zinc sulphate and lead acetate to the ounce of water. After about six weeks of this treatment, between sixty-two and sixty-five per cent. of the patients are free of all signs of the disease.

In many instances the inflammation spreads backward into the prostatic urethra after ten or fourteen days. The classical symptoms of acute posterior urethritis, frequent and urgent urination with tenesmus and perhaps with terminal hematuria are often absent. In a large proportion of cases the only sign found is a turbid second urine,

due to flowing backward into the bladder of the pus which is formed in the posterior urethra. Prompt discontinuance of all intraurethral treatment and putting the patient to bed will usually clear up this condition in a few days. If the posterior urethritis persists, instillation of a 5% solution of protargol or a 1-500 solution of silver nitrate gradually increased in strength are needed, and if the condition becomes chronic with persistence of infiltration in the prostatic urethra, dilatation and irrigations or instillations are necessary.

In camp, the treatment of these cases differed from the above in two respects. Every case of acute gonorrhreal urethritis was kept in bed for from three to five days. The patients were then allowed to be up and about in the hospital, but were given irrigations of the anterior urethra twice per day with a $\frac{1}{2}\text{-}1\%$ solution of protargol in place of the three daily hand injections given similar cases in civilian life. The method of irrigation was as follows: The patient would stand before the surgeon with the irrigator about three feet above the patient's pelvis. The nozzle was applied to the meatus and enough of the solution allowed to run in gently to fill the urethra without overdistending it. The tip of the nozzle would then be drawn away sufficiently to permit the fluid to escape from the urethra and then reapplied and the urethra filled again. A half pint of the solution was used at each sitting. The discharge would become mucoid in from ten to fourteen days, after which the patient was discharged from the hospital. The ordinary treatment as outlined above was then continued, except that the patient would report once a day at the hospital for a urethral irrigation of protargol and would use an astringent hand injection twice a day.

The result obtained with this treatment was a shortening of the period required to eradicate the disease to five weeks, one week less than was required at home in those cases who made an uneventful recovery.

The percentage of cases which resisted treatment was the same at home and in camp. In fact this percentage was constant with whatever form of treatment we used, the only difference being in the duration of the disease; the obstinate cases all showing some underlying cause for their refusal to heal. Examination showed in these cases the presence of some lesion left over from some previous urethritis, stricture tissue, new or old prostatitis, seminal vesiculitis, unresolved edema or congestion of the urethral walls due to persistence of underlying infiltration, granular patches, erosions, urethral follicles with rigid, infiltrated walls and filled with infectious inflammatory debris, periurethral abscess, papilloma of the urethra, etc., or certain congenital conditions which interfere with healing of inflammation within the urethra such as narrow meatus; less often hypospadias and rarely, epispadias.

These complications received appropriate treatment. Dilatation of the urethra removed the infiltration of its walls, and the overlying areas of edema and catarrhal inflammation disappeared; this treatment also broke down the infiltration in the walls of the gaping urethral follicles and expressed their infectious contents; it destroyed the granular patches and encouraged cicatrization of these and of erosions. Such of these lesions as resisted the dilatation received other treatment. Gaping follicles were slit open thru an endoscopic tube, granular patches were curetted and their bases touched with a 50% solution of silver nitrate and erosions were touched with a

similar solution. Urethral polypi were curetted away and their bases touched with a 50% solution of silver nitrate; narrow meati were enlarged by cutting; stricture tissue, prostatitis, and seminal vesiculitis received appropriate treatment. The large majority of these cases and the infectious cases of chronic urethritis were rendered non-contagious in eight weeks.

The requirement in the luetic cases, as explained above, was that all superficial lesions—those of the skin and of the mucous membrane—should have been absent continuously for three months. The treatment given these cases, both in the primary and in the secondary stages, aside from the local treatment of the chancre when that was present, was in courses. Each course consisted of six weekly intravenous injections of arsphenamine and concurrently with these, ten injections of salicylate of mercury in one grain doses, one injection every five days. In tertiary cases, iodide of potash was given also. A rest of one month from all treatment followed, and if the lesions reappeared or the Wassermann reaction became positive again or had never become negative, the course was repeated. In the vast majority of cases the patients were ready for discharge from the development battalion into their regular organizations after one and a half courses. The course and a half lasted about fifteen weeks, the last three months of which the patients had been free from superficial lesions.

The results obtained can be clearly understood when we say that of two divisions of troops only about seventy-five men remained in the development battalion. Also, of some 4,500 cases of gonorrhreal urethritis and 600 cases of syphilis, all with active lesions, that were sent from surrounding

camps for treatment and were under observation only three months—too short a period for any of the syphilitic cases to be discharged under the requirements (three months of complete freedom from any superficial lesions), about 80% of the total or 91% of the cases of gonorrhreal urethritis were discharged as fit for service.

Two other points of interest may be mentioned: the methods used in administering the arsphenamine, and the microscopic and serologic findings in the luetic cases.

At first the intravenous administration of the arsphenamine was made in concentrated solution, 0.6 gram in 30 c.c. of sterile distilled water with a Record syringe. A thousand such injections were given at the base hospital without any marked reaction occurring. Orders were then received from the surgeon-general's office that arsphenamine be given only in dilute form, 0.6 gram in 125 c.c. or more of water. Similar results were obtained with this method. Among several thousand intravenous injections of arsphenamine, only five or six cases of phlebitis and periphlebitis developed, and these occurred when new men were put in service to administer the drug. In the regimental clinics this standard was not reached, but even there the results were good.

The initial lesions were examined for the spirochete by dark field illumination. Forty per cent. of the cases proved positive and sixty per cent. negative after repeated examination.

The Wassermann reaction was taken in every case of primary syphilis, none earlier than three weeks after the appearance of the sore. In 35% of the patients a positive result was obtained and 65% were negative. In patients with secondary lesions, the Wassermanns, taken before treatment was

begun, showed 50% positives and 50% negatives. In very few of the patients whose sera gave a negative Wassermann did the reaction change to positive after provocative treatment. Of the 50% of the patients whose sera were positive, 30 became negative and 20 remained positive. It must be remembered that the period of treatment in the base hospital was necessarily short and further treatment no doubt gave better results.

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THE VOLUNTEER MEDICAL SERVICE CORPS.

BY

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After the first and most pressing needs of the Army and Navy Medical Services had been met, attention was turned to the question of classifying the entire medical profession of the country, to meet possible needs in the future. It was recognized that, while many physicians were not eligible for active service, the care of troops in this country and the needs of the population would make unusual demands upon the profession. It was, therefore, determined to classify the entire profession by securing accurate data concerning the education, experience, efficiency and general standing of members of the profession.

The inception and authorization of this work came with the approval of the president, from the Council of National Defense. The office force was that of the Medical Section of the Council of Defense. The

council already had, in each State, a committee; and, in addition to these, county committees were appointed, the duty of the committees being to pass upon applications for admission, verify their data and thus secure accurate and reliable information concerning their eligibility. An insignia was devised, approved and adopted, together with a certificate, and these were furnished to members at cost.

The affairs of the Volunteer Medical Service Corps were in the hands of a Central Governing Board, comprised of the Surgeons-General of the Army, Navy and Public Health; representatives of their offices as executive officers, and leading members of the profession. Meetings of this body were held at the building of the Council of National Defense, in Washington, as needed.

As the work developed, it was evident that the data obtained by this organization was the most complete and accurate information in existence concerning the profession. The work of enrolment proceeded steadily and, in various portions of the country, the services of the corps were utilized as occasion demanded. In Philadelphia, members of the corps formed a consulting board for service with the Red Cross, in caring for the families and the dependents of soldiers and sailors. Members of the corps also served in industrial plants.

When the epidemic of influenza developed in October, 1918, the Public Health Service called upon the corps for assistance. Over 400 physicians volunteered to give up their personal work to serve under this department. In acknowledging the valuable aid thus rendered, Surgeon-General Blue, of the Public Health Service, stated that the service thus rendered by the corps had been

of the greatest value and amply justified its formation and activity.

When the armistice was signed, the Council of Defense, after conference with the Surgeon-General of each department, decided that the data already obtained were so valuable that an effort should be made to complete the classification of the profession. At that time, in round numbers, 60,000 physicians had responded to the call of the corps; 66% of the medical profession was, in some way, at the disposal of the government. It was, therefore, decided to proceed with the classification of the profession, and to place the completed record in the office of the Surgeon General, where it will be available for the needs of any department of the government, in future emergency.

In August, 1918, when the Central Governing Board was making every effort to completely develop the corps, the president expressed his warm appreciation of its work and the Council of Defense again endorsed its activity.

No formal action has been taken dissolving the corps and those members of the profession who joined its ranks constitute today a body of medical men who may be of the greatest service to the government in future emergency.

The Greatest Asset.—In these days when reconstruction is in the mind of every one says Brewer (*Boston Med. and Surg. Jour.*, June 12, 1919), we hope that in the plans that are evolved for the betterment of the states, our law makers will not forget that health is the greatest asset of the nation and the states, and unless the vitality of the nation is guarded in the new laws that are to come out of this world's war, we will have failed "to make the world safe for democracy."

THE CARE OF SICK AND WOUNDED FROM OVERSEAS, AT U. S. ARMY DEBARKATION HOSPITAL No. 3 (GREENHUT'S).

BY

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The splendid achievements of the Medical Corps of the United States Army for the past two years will be reflected upon the after-work of the war, not only on behalf of the soldiers but upon civilians in every walk of life of the generations yet to come. The results will be much more far-reaching than mere military service. The general sanitary welfare of the nation will gain tremendously in the general health of the people and the cure and prevention of disease, as the result of the past few years of study and practice in the medical and surgical branch of the military service. The training in discipline for American doctors as the result of their army work in systematic methods and executive management will be instrumental in developing the better individual equipment of these professional men when they go back to civilian life, and will enable them to give to their respective communities the benefit of their studies in the greatest clinic the world has ever known. The same efficient mastery of unfamiliar and unexpected problems will be continued for the American people, the citizens of this country, when these same capable and self-sacrificing American doctors return to continue their labors in *mufti*. Few persons realize that no class of men gave up more for the service of their country than the physicians and surgeons who joined the medical and sani-

tary corps of the army. Many of them abandoned practice which had required years to build up, and in the very nature of the case other men took their places and will naturally retain them. It is not so easy for a doctor, even a specialist to "come back." Often he must begin all over again. The self-sacrificing and cheerful elimination of personal interests that has characterized the men and officers of the medical and sanitary corps will never be fully known.

To cite an example of the extent of work accomplished, in the operation of which I have been fortunate enough to participate, is the part played by the Medical Department in the United States Army Debarkation Hospital No. 3, formerly the Greenhut-Siegel & Cooper Department Store, at 18th Street and Sixth Avenue, New York City. Almost without attracting attention, there sprang up within 84 working days, in the center of the business section of the city, the largest military hospital in the country. In some respects it is the best equipped hospital in the United States. The conversion of this department store into a hospital, the installation of more than 4,000 beds, sick room and surgical equipment, kitchen costing \$48,700, mess hall furnishing, the largest X-ray section in the country, laboratory, operating rooms, dental and other special treatment rooms, facilities to accommodate 4,000 patients, quarters for nurses, orderlies and other attendants, including hospital escort unit, medical and surgical personnel ready for all emergencies and all kinds of cases, and later the manner in which it was managed by a staff of officers in the various specialties, is as tremendous an achievement as anything accomplished during the war. Its preparation meant a complete cleaning up

and redecoration, if its sanitary remodeling and repainting can be called such.

It is probably the most cheerful hospital in the world. The doughboys look a trifle solemn when they arrive, but this vanishes after a shower bath with an abundance of hot water and the issuing of freshly laundered hospital clothing; and when they gather around the billiard and pool tables or rest their tired racked bodies

the best theatrical talent furnishing the entertainment for nothing, telephone and telegraph facilities, and a wonderfully equipped library.

The first patient arrived November 23 last, and during the intervening seven months since then there have been received from the transports and passed on after their first land treatment, either cured and ready for civilian life and labor, or else



The Adjutant, Lieut. A. F. Anderson, M. C., in his office at United States Debarkation Hospital No. 3.

on beds equipped with springs and mattresses which a millionaire sybarite might find most comfortable, or visit the conservatory with its many couches and chairs and grove of potted plants, phonographs, a piano that plays itself, what more can be asked of a roof garden which wants to be considered a conservatory? There are bath rooms, reception rooms for visitors, a theatre with a seating capacity of 1,500,

escorted to military hospitals near their homes for further treatment or, in special cases, to hospitals especially equipped and planned to care for particular types of cases, nearly 37,000 men. The greatest number of admissions in one day was 2,235, and the largest number discharged in 24 hours was 1,538. The greatest number in the hospital at one time was 3,900.

The weekly food consumption of the hos-

pital running at full capacity is approximately:

10,000 lbs. of beef
3,000 lbs. of lamb
3,000 lbs. of veal
7,000 lbs. of chicken
2,500 lbs. of fish
2,000 lbs. of bacon
2,000 lbs. of ham
2,500 dozens of eggs
2,000 lbs. fresh pork and sausage
30,000 clams
30,000 oysters
600 gallons of ice cream
6,000 quarts of fresh milk
2,300 lbs. of potatoes
2,500 lbs. of butter
2,200 lbs. of cereals
18,000 oranges
1,000 grapefruit
18,000 apples
3,000 lemons
10,000 bananas
15,000 lbs. miscellaneous vegetables
20,000 lbs. bread
Etc., etc., etc.

The cost of maintenance when running at top speed is \$6.00 per minute at this hospital, \$8,640.00 per day.

The great number of patients, the tremendous expense of medical supplies, the pay of medical personnel, nurses, orderlies, cooks, military guards, escorts, etc., and the policy of the army to give the men only the very best of everything, whether medical treatment, or the equally necessary food, clothing, and quarters, is the justification for this heavy expense.

It is, of course, necessary to maintain discipline, and with such a "whale of a proposition," this was no small task, for it must be remembered that this organization comprises a personnel of 107 medical officers, 306 nurses, and 961 enlisted men, plus the great number of patients who had to be assembled into one big, smooth running machine; but with the aid of a

competent corps of assistants, chief of whom is my Adjutant, Lieutenant Arthur F. Anderson, this problem was worked out most satisfactorily. It was accomplished by the instillation and maintenance, by ever watchful vigilance, of that mysterious something called *morale*. Who can interpret such an indefinite thing? Yet we know that it is a most essential something upon which depends the success of any organization, whatever the status of that organization may be. We know that it is the getting the mind into a condition which will instil into the whole being the desire for efficient accomplishment, where the entertaining of a discouraging thought has no place, and where an enthusiastic ambition to do duty's work for duty's sake is paramount. To maintain this state in an army hospital, where the patients are on crutches or with canes, or lack an arm or a hand, or are less favored by the fortunes of war and are blind, is a vital problem. Here the state of mental depression, with distortion of judgment, illogic reasoning and the impatient magnification of trifles incident to wounds or illness or delayed convalescence, and the subsequent subnormal condition existing, brings about to a greater or lesser degree a spirit of antagonism to discipline or anything that savors of restriction, however necessary this may be for the maintenance of order.

Immediately upon admission to the hospital the opportunity to circumvent this condition to a great extent presents itself, for equally important with treatment, purely medical or surgical, has been the psychological work which we have done with the men. In our hospital it has been no different from that in all the other great institutions in New York and other parts of the country under army direction. When

the sick and wounded arrive, one gets the impression of great wondering eyes, thin cheeks, soiled or creased clothing, and hob-nailed boots. They all seem to think in their quiet, uncomplaining, disciplined way: "Well, here I am! what the —— comes next?" To answer that natural query when the racked lads reach their native land for which they have fought and have longed and hoped for so yearningly, I make it a practice to deliver a short talk to each incoming contingent, extending a word of welcome and letting them know that we are proud of them; explaining that we are ready and happy to do everything possible for them, and that the best in the world is none too good; that if they have anything to complain of, or if they only think they have, I want to know it, because if I do not know what their troubles are I will not know how to correct them; that in this hospital it never operates against a man to make a complaint; and that if he is too sick to come to me, I will go to him. On the other hand, we tell him if he is well treated, to write home to his friends and tell them so. This introduction is a big help.

In the after-treatment, we try to make them realize that they have the country back of them as well as ahead of them. They know what they have done in the field, and without coddling or spoiling them we let them understand that we over here know it too. They in turn send messages of reassurance to their friends and relatives, and I am confident that when these men reach home they will bear with them for the rest of their lives an appreciation of what the army medicos did for them. A greater service even than the surgical and medical curative work is thus performed, for if the men are dissatisfied with army life when they arrive here suffer-

ing, depressed and devitalized, it gives a new feeling, and this I believe is one of the greatest cures for the social discontent and the political unrest that are menacing the entire civilized world.

The morale of the returning troops is in the main satisfactory. These men, whether in good physical condition or wounded, sick or disabled, are happy to be home again. The various warfare agencies and civilian agencies functioning thru and within hospitals, and the people at large by furnishing entertainment and amusement, and an environment of comfort and hospitality have given these men no time to become morose or dissatisfied and are making every effort to impress upon them that their work as soldiers is appreciated.

On the other hand, the maintenance of the morale of enlisted men of the Medical Detachments assigned to duty in army hospitals is different and difficult, for the reason that the men know that the members of the A. E. F. and other organizations of the army are being demobilized and sent home while they themselves are being held indefinitely in the Service. The continuation of these men on active duty is, of course, most necessary for the reason that the hospitals must be kept up and the returning sick and wounded cared for until the last man is sent home. Many of these men feel that, thru no wish of theirs, they are on domestic duty and that they are being discriminated against because they are not overseas men. It would seem that some of the generosity in the matter of entertainment to returning overseas men might profitably be extended to the men whose military service has been confined to the drab routine of domestic duty without the excitement and interest of overseas service.

As before stated, the Medical Detachment

of our corps men, as they are called at Debarkation Hospital No. 3, consists of 961 men who are ever ready for any and every emergency twenty-four hours a day. It is true that not all of the soldier patients require constant attention. In fact, fortunately, many of them can stroll around with no one worrying about them or on account of them. However, actual medical care plays a small part, from the point of view of variety as compared with the other duties to which the detachment has fallen heir. Of course the hospital must be guarded; also it must be cleaned and kept clean. This is a daily task of no small proportion, as the institution covers half of a city block and is seven (7) stories high, has 600,000 square feet of floor space and 58,196 square feet of glass. All this the corps men look after. It is no exaggeration to state that there are at least a million different pieces of medical and quartermaster property in use here. Who but the Detachment men check these up and hold them in readiness for instant use?

When the soldier patients are received fresh from the ships, the first step that befalls them is the taking away of their clothing and, on account of sanitary precautions the sterilization of the same, followed by the issuing of an entire new outfit. This also the corps men attend to. Finally, the linen and store rooms are presided over by men of the Medical Detachment.

When it comes to administrative and office work, here again it found the Detachment man, and not infrequently it seems that hospitals were created for no other purpose than to provide an opportunity for some red tape wizard to see how many knots he could tie in the daily procedures. Acting as assistants to the Adjutant, the Registrar, the officer in Charge of sick and

wounded, reports, etc., the receiving officers and the Detachment Commander, will be found enlisted men of the medical department. While their work is confining, tiresome and exacting, they are at it ten and twelve hours a day because they know it must be done.

The mess and kitchen, with its 204 men—cooks, kitchen police, and orderlies—also have their important role to play, for the feeding of 5,200 persons daily is surely a man-sized job. During the month of March this department served 416,113 meals. The immediate overseeing or oversight of this gigantic task is under the supervision of Captain Carlton D. Haas, who plans the menus for all meals a week in advance. These *cartes du jour* are worked out along the lines of the most modern science and dietetics. Sixty-eight graduate dietetians are in constant attendance in the great kitchen supervising the preparation and service of the food.

Most important is the Army Nurse Corps of the United States Army, both of the regular service and of the Army Reserve Corps. These are often incorrectly alluded to as Red Cross Nurses. It has been my privilege to watch with great admiration the professionally efficient work, painstaking and unselfish devotion of these uncomplaining, unselfish, self-sacrificing women, whose patriotic zeal and desire to lend their aid in humanity's cause has added one more brilliant ray in the glorification of American womanhood, and when the Great Master remakes the heavens and resets the firmament, may He place there one bright star to be called the "Army Nurse Corps of the United States Army."

What is being done at Debarkation Hospital No. 3 is simply an index of the work of the War Department elsewhere, and that

this effort and attention have not been in vain is manifest in the success encountered in recruiting the 50,000 men asked for to replace the Army of Occupation. A few days ago Mr. Baker expressed confidence that the 5,000,000 men who are needed for the permanent army would be readily secured if the government continues the policy of attracting men with educational opportunities. The old time soldier was a man whose ambition, if he had any, was not stimulated. Officially Uncle Sam fed, housed, clothed and paid him, etc., down to medical treatment and entertainment. Again quoting Mr. Baker: "The only way to maintain an army in peace time is to make it an educational opportunity." The above words dovetail so well that they express the purpose and attitude of the government towards its army most admirably. "Stimulate ambition" and "make educational opportunity." These are the keynotes of an almost perfect system. First, give a man opportunity and then stimulate his ambition; and if he makes good, stimulate him to further success and continued activity by encouraging his ability and accomplishments; and this encouragement is given by recognition, meaning promotion. Recognition of a man's service and ability is the greatest stimulant to a man's ambition, not the empty recognition which is required to coax along or "salve" the path of those who just drag thru each day doing barely enough to justify their existence, but the true recognition which every loyal, zealous and ambitious man of this day wants and deserves. Recognize his effort and accomplishments and encourage him to a continuance of the same, for to stimulate a man's ambition is to make him; curb his ambition and the man is ruined; and any one in the great machine who for any rea-

son, knowingly or unknowingly, curbs a man's ambition and thereby kills his morale and zeal by obstructing his progress in the upward path, not only injures the individual affected, but does so to the detriment of the government which he is supposed to be conscientiously serving; for primarily the machine is being deprived of continued or even better service which might, if not discouraged, be of added and material benefit. Moreover, failure to recognize merit gives opportunity to the opponents of the government, and exponents of the various "isms," to criticize unjustifiably the system of our government and of our army when the fault lies not in the system, but with those manipulating the system, the intent and purpose of which are always to work for the common good.

MEDICAL ACTIVITIES OF THE U. S. NAVY UNDER ADMIRAL SIMS' COMMAND.

BY

HENRY REUTERDAHL,
Lieut.-Commander, U. S. N. R. F.

Ten regular Naval hospitals were established, four of them with more than 500 beds. In these hospitals more than 3,000 men could be cared for at one time, and beds were so abundant that there was always room for persons not in the Navy, such as the Army, Y. M. C. A., Knights of Columbus, and the British Army and Navy.

In addition, the facilities of the Naval hospitals were extended to the personnel of the State Department, various Government Boards, official newspaper men, etc. One 500 bed hospital was exclusively devoted to the care of the sick and wounded of the American Army. These hospitals were scattered from the extreme north of Scot-

land, thru England and Ireland, along the French coast and to Gibraltar.

All these hospitals had full outfits of surgeons, medical men and specialists, such as orthopedic surgeons, X-ray operators, laboratory men, etc. The hospitals had a large personnel of Navy female nurses, and the full Navy hospital ration was maintained at all times. Every patient in all these hospitals was made to forget for the time being that he was away from his own home.

In addition there were about 40 other stations fully equipped with dispensaries and beds, the latter ranging from 20 to 150.

In the main the numerous air stations were on isolated coastal points, far removed from any help, and the Medical Department was necessarily made completely self-sustaining. In the most isolated places the Medical Departments were fully equipped, including complete surgical outfits, tiled operating rooms, sterilizers, etc. The completeness of the equipment of these small units was a constant source of admiration and wonder to all who saw them.

On account of the hazardous nature of aviation the Medical Departments of all units were prepared to take care of 10% of casualties of the entire force.

The activities of the Medical Department were far-flung, extending from Archangel to the Island of Corfu.

Before any locality was occupied by any men of the Navy a thoro sanitary survey was made, including elaborate chemical analyses of the water, and if anything was found wrong it was corrected, in order that perfect health could be maintained. The medical officers were constantly alert to prevent the introduction of severe diseases and plagues in the force, as there was a constant menace of cholera, typhus fever,

Malta fever and malaria.

Large medical storehouses were established in England and in France from whence all the medical stores were issued to all parts of the force. Thruout the entire war the hospital and dispensary facilities were at all times about double the demand.

The dead of the Navy were looked after with a kindly spirit, and a large number was embalmed on the spot and immediately returned to their relatives at home. This was done in practically all cases where local laws or international agreement did not prohibit immediate removal.

Immediately after the declaration of the armistice, hospital ships and transports started to return the Army sick and wounded to the United States. This is continuing in large numbers.

At the time of the armistice, units of the Medical Department of Admiral Sims' command were actively operating in ten European countries.

RECREATION AS A MORAL FORCE IN ARMY LIFE.

BY

B. SHERWOOD DUNN, M. D.,
Paris, France.

History shows that one of the unvarying concomitants of all great wars has been a rapid and tremendous increase in secret diseases to which the soldier on leave is exposed by the congregation of lewd women in all of the great centers. By reason of the call to arms of all the ablebodied men, policemen as well as others, the regulation and control of the social evil is relaxed and soon assumes proportions that make it hard to overcome. Our military leaders were well aware of the existing conditions in France and took extraordinary precautions to protect our troops.

Nothing done by America in the great

war has stupefied or puzzled the French more than the huge expense of the numerous leave areas created behind the American Army; the numberless troops of actors, singers, performers; the cinemas, bands, orchestras, baseball, football, games, clubs and dancing halls; reading rooms, writing rooms, to say nothing of the eating places, canteens, supply depots stocked with candies and many luxuries unknown to the French soldier, as to the civilian, for two years before the arrival in France of the American Army. It seemed that this great new army had come to France on a holiday, bent upon amusement rather than a vital struggle of life with death and the saving of a great cause for the safety and benefit of future generations; but gradually there filtered thru the public mind an appreciation, that behind all of this apparent careless and expensive frivolity lay a great purpose for moral and physical good, directed to the one end, of occupying the time and attention of the soldier during his leisure hours, and of creating a stamina and moral support of the fighting force.

All France is fully alive to the unprecedented increase in the social evil since the outbreak of the present war, and as the knowledge has spread that the American Auxiliary Organizations were enlisting the services of the leading Americans to come to France and were expending hundreds of millions in the effort and with the object of furnishing constantly such variety of interesting and attractive forms of occupation and amusement as to keep our men away from less desirable places and less dangerous companions, there sprang into life a growing desire on the part of our French friends to become a part of these forces for good and help in every way to further the far-reaching influences thrown out and around the American soldier for his aid and protection. This has resulted in a movement thruout France, as revolutionary as any social movement ever born within its borders, nothing less than the breaking down of the barrier which from time immemorial has kept French family life as safe from invasion, as any Turkish harem.

Inspired with the idea of facilitating the acquaintance and intercourse between Americans and the French, a group of French people founded "French Homes" an association to extend the hospitality of

French families to the American Expeditionary Forces; the appeal of this society, thru the press for rooms where Americans might find comfortable quarters and family life at reasonable rates met with instant response thruout the whole country.

Americans who have lived in France and know the French are aware that no homes are more shut to the stranger or foreigner than those of France. It is almost impossible for an outsider to hope to enter their sacred precincts, and this is one of the prime factors that has prevented foreigners from forming a just estimate of the real life of the French home.

This barrier was broken down by a few lines in the leading papers, an appeal to French family circles for the homeless boys whom America sent to fight for France, and old aristocratic mansions opened their gates wide to America's sons.

Letters flocked to the offices of French Homes. Some of the noblest families bade Americans welcome to their mansions, where family life would await them.

"It is little enough we can do to make some return for all she has done for us," wrote a proud old duke, "but what little we can do, let the Americans know we are proud and happy to do."

"I have not been used to receiving perfect strangers," writes a countess, "but all that my home can offer will be gladly given to help some American to feel he has a home in France."

"I have two rooms," writes an old father. "They were my two sons' rooms. Both have been killed on the battlefield. I cannot do better than offer what was theirs to two American boys, brothers in arms of my two heroes."

And in all ranks of society from the highest to the humblest the same touching trait is to be found.

Here is a poor woman, who lives by selling vegetables, opens up her humble home to an American boy; a writer offers to share his "den" with an ally; an artist his studio; here a clerk in a shop says "my children may help to make up for a humble lodgings in making some lad feel at home over here."

I but recently returned from my furlough spent in Nice on the Mediterranean, which has been made into one of the greatest leave areas, and there I found an organi-

zation of marvelous variety and efficiency.

Out in the ocean bordering the Promenade des Anglais stands the Jettee Promenade, a great palace built for the amusement of the Nicois. This building has been taken over for the American Army. Two bands play daily in the two great halls forming the two wings and separated by the width of the main building, which contains a theatre, concert hall, dancing hall, where an orchestra plays for dancing afternoon and evening, and a great café filled with tables where refreshments are served at cost, with a canteen supply store selling all sorts of things including tobacco in all forms, candies and sweets.

This building is exclusively for soldiers. Officers are not received.

On the Place Massina there is a beautiful theatre for officers with a great variety of free nightly performances. Also the first floor of a beautiful building consisting of a dozen rooms fitted as a club with an enormous hall for dancing that will accommodate 200 couples, where an orchestra plays from 3 to 6 and 8 to midnight. This club is constantly crowded and here is exhibited a working agreement between the army authorities and local residents productive of most excellent results.

No lady is admitted except by a personal card, to secure which she must furnish her name, address, and two city references; this application is turned over to the local Committee of French Homes who investigate and pass upon the qualification of the applicant. By this means all undesirable "ladies" are excluded and as a result the family of the Prefect, the mayor of the city and all the leading families frequent the club and join in helping to entertain visiting officers. In the resultant acquaintance many of these officers are invited to the leading homes of Nice.

Now many Americans will learn to know French women as they never knew them; not the painted dolls they meet in places of amusements, but the proud and wonderful women who helped to keep up the courage of absent husbands and sons, whose delicate hands knew how to tend dreadful wounds, whose fragile strength never grew weary of long days beside the sick and dying in the hospitals. They will learn to know girls as pure and sweet as those of their own country, and, thanks to this so-

cial revolution, the time-worn prejudice against "frivolous French women," which the American traveler has shown upon his return from a trip abroad may be corrected.

146, Av. des Champs Elysees.

CLEARING THE WOUNDED.

BY

JOANNA WALTON HARTING,
New York City.

"Medical men never impressed me as being such an heroic lot, but I am of a different opinion since I worked with them over there. They certainly showed the stuff they are made of in the field."

It was merely a casual remark that this tribute to his brothers in the profession came from Colonel Walter C. Montgomery, the Twenty-seventh's Division Surgeon, in the course of his warm-hearted praise for the boys of that now famous body, which will go down into history as the force which smashed the "impregnable" Hindenburg line and made the Kaiser say "enough."

It is not from the physicians and nurses who have recently returned from duty overseas that one will learn of their share in the fight for democracy. When they talk of the war at all—and that is not often—they glorify the fighting men in the field, laud the officers who trained them to be soldiers, express admiration for the manliness of the chaplains, acknowledge their debt to the Red Cross; in short they give due praise to every one concerned, but take little credit to themselves. Their contribution they seem to regard as a regulation performance in the line of duty. It is only thru the official records of heavy casualties during days of continuous fighting, necessitating day and night labor on the part of the doctors, that one gets any idea of the service rendered by the men in the medical profession and their colleagues, the nurses. If their heroism be a revelation to one of their own calling, their humility is no less a one to the layman.

"On the day of the heaviest fighting in the Hindenburg show we cleared four thousand, and I heard but one man groan and he was unconscious."

This statement Colonel Montgomery puts forth as signal proof of the American soldier's grit—but what a magnificent record for the doctors in attendance. Four thousand men received medical attention in one day, yet the Division Surgeon's praise is all for the wounded men; the feat of the doctors is taken as a matter of course.

It was the duty of Lieut.-Colonel Lefferts Hutton, Assistant Division Surgeon of the Twenty-seventh, to insure the prompt evacuation of the wounded men from one medical station to another. He worked at the Advanced Dressing Station, which at Mt. Kemmel was shelled out. But the doctors were only intent on the task in hand of giv-



Miss MacDonald.

ing the best possible treatment to every man passing thru, and of a upholding the reputation of the Twenty-seventh Medical Corps.

"While we were in the thick of it we never thought of anything but the work" said Colonel Hutton. "The men felt worse about being left behind and out of the scrap than they did over their wounds. Even the badly wounded ones would come in cursing their luck for 'getting theirs' before they had a chance to go further."

Colonel Edward H. Fiske, commanding officer of Base Hospital No. 37 at Dartford,

England, to which the severely wounded men were evacuated from France, usually had between 2,300 to 2,400 patients with a staff of only twenty-five doctors; yet he never speaks of the heavy work entailed but is all admiration for the boys and takes his greatest satisfaction, in the success of the operations which enabled so many of them to return to the front or to duty behind the lines.

At Dartford, which is on the Thames, fifteen miles from London, the excitement of the moment had died down, yet the men displayed the same indomitable spirit as they did on the field.

"When we let them know that we would have to take off a leg or an arm" said Col. Fiske, "they might just look at us a second or two, rather wistfully, perhaps, and maybe ask if we could not wait a little longer to see if it could not be saved. That was all. There was never an outward sigh or regret for what they had given. Nobody can do justice to the courage of our boys."

Miss N. Grace Bissell, who went over with the Wellesley Unit, and was attached to the Red Cross Mobile Hospital No. 114 spoke in a similar way.

"We would have to search for the seriously wounded; the boys would never tell. One night I was putting a boy to bed and found a tourniquet on each ankle. One foot was gone, the other was hanging by the Achilles tendon. He must have been in fiendish agony.

"How did it happen, Buddy?" I asked.

"He could hardly speak, but he managed to say 'I was going over the top when I fell flat. I tried to get up and my feet were gone, but it is alright.'

"That is just one instance" continued Miss Bissell. "I could tell a score of similar ones."

This indifference to wounds is cited again by Colonel Montgomery.

"My orders to the staff were 'Dress the wound a man tells you about, but then look him all over.' It was an even chance that another one or more would be found. Perhaps they knew they had it but thought it too inconsequential to mention. Perhaps in the excitement they were not conscious of it. Our boys fought like a pack of wildcats. They seemed to feel nothing until they fell.

"Take for instance the case of young

Lieut. Schwab of the 107th Infantry, whose whole lower jaw was blown off. He was only a few feet from his captain, yet he motioned with his rifle that he was going ahead. Of course he dropped in a few seconds. They bandaged him up on the field and he was still conscious when they brought him in. We clamped up the arteries, but he died on the table. Can you imagine a man wounded like that and still having the spirit to go on?

"There was another boy who comes to mind just now" went on Colonel Montgomery. "He was shot thru the cheek. Then another shot passed thru his larynx, rendering him speechless. He went another five hundred feet before a shot thru the heart killed him.

"These men may receive citations but you seldom get the real story of their bravery. Only the men right at their side know it and then they see so much of it that they take it in a matter-of-fact way."

In a reminiscent mood Colonel Montgomery turned to his old friends of the Twelfth Regiment, N. Y. N. G.

"You would come upon a big strapping fellow lying there all covered with mud and you could not realize that he was gone. When you turned him over and saw his face, you would know that he would never move again."

Colonel Montgomery was silent for a minute of two. Despite his training as a surgeon and his experience in army camps and on the field he has a heart as tender as that of a child. It was evident that the loss of his comrades had made a deep wound. When he spoke again it was in a very low voice, "So many of them were my old pals."

Reverting to the more general aspect of the American lad's behavior in the field he continued, "The only thing a man ever asked for when he was brought in was a cigarette or a cup of coffee or chocolate. The Red Cross was always on hand to furnish that and whatever else was needed.

"In the Advanced Dressing Stations they had their Primus stoves and two big urns going night and day.

"Pain very bad, Buddy?" you would inquire of a horribly wounded boy.

"Pretty bad", might be the reply.

"Want something to make you a little easier?"

"If you have it".

"You would never hear anything more than that.

"It was the stoical way in which the wounded men endured their sufferings that enabled the doctors to accomplish what they did. If we had to endure the groans and lamentations which are often our lot in civilian life it would have been mighty hard. The courage of these men bore us up. There was such magnificent cooperation on the part of the men that the doctors would work night and day, snatching a couple of hours sleep whenever or wherever they could get the chance.

"And right with us in the thick of the fight and in every emergency was the Red Cross. There was no red tape about it, no explanations, no accounting. All we had to do was to ask for a thing and we got it in the shortest time it was humanly possible for transportation.

"Capt. Bobo, head of the Red Cross detachment did not wait for a man to be sick or wounded before helping him. He felt his duty was to the man in the service whether he was sick or well altho, of course, the wounded men got the greater part of the attention.

"It did not matter whether it was surgical dressings, Greely packets, blankets or ambulances which were necessary, the Red Cross was always on the spot when it was needed.

"At Villers Fauchon we could not accommodate all the wounded in the M. D. S., and hundreds were lying outside in a cold, drizzling rain. The Red Cross came forward with two thousand blankets and did everything to make the men outdoors as comfortable as possible.

"The Red Cross was a reserve on which one could depend for anything at any time. It was not a haphazard sort of aid. It was a well defined, well thought out system calculated to meet any emergency which might possibly arise. Capt. Bobo was thoroly conversant with all our plans and moves. His detachment was composed of men who had gone overseas to fight and for some slight physical defect or reduced vitality were found unfit for front line duty. They had all the courage of the fighting men. They were under fire almost as much as the men at the front."

Colonel Hutton reviewed the three big

engagements in which the twenty-seventh participated with the British and Australians, and explained the procedure of the Medical Corps in caring for the wounded.

"In the Belgium push, the Americans—the Twenty-seventh from New York and the Thirtieth from Tennessee—covered nearly an eight thousand-yard line with the British on either side. The Nissen hut sheltering the Battalion Aid Post was about one thousand yards back of the firing line. It was to this point that the men were

evacuation hospital at Esquelbecq. Cases that would require a long treatment were then sent to England.

"At the Hindenburg show we could bring the busses within fifteen hundred yards of the firing line. The British thought our Red Cross drivers were the most reckless of men. The British were severely reprimanded when they lost an ambulance, and therefore they would not take the chances the Red Cross men took. The Red Cross thought more of getting the men back to



American Red Cross

Col. Fiske escorting King George.

carried from the field by the sanitary detachment of the regiment. From there, the wounded men were removed by 'hand carry' or wheel stretcher to an Advanced Dressing Station, one covering either flank of the line, St. Dunstan being at the right, Longbarn at the left. There we administered the anti-tetanus and morphine and ligated arteries. After this, ambulances carried the men to the Main Dressing Station at Remy Siding, and from there they were loaded on ambulance trains to the

the dressing stations than they did of a shell.

"We established the A. D. S. at St. Emilie in an old sugar factory which had been dynamited by the Germans. The M. D. S. was at Villers Fauchon. This had also been used by the Huns, but we salvaged what we could and improvised an operating room. On August 27 we took over two British ambulance units, each consisting of five Daimlers, two Fords and three horse drawn; but even at that, there was not suf-

ficient a number, because the casualties were so heavy, and Capt. Bobo and Lieut.-Col. Walter C. Bell made a whirlwind night trip to Paris—a distance of 156 miles—and brought back ten Red Cross ambulances.

"After finishing that job we were out of line from October 2 until October 11. We got a chance to get a real bath, a shave, a regular sleep and other such luxuries.

"We went after the Huns again at St. Souplet. In four days we moved the M. D. S. to Busigny and established the A. D. S. at Escaufort. The A. D. S. was at Busigny and the M. D. S. at Premont, while we evacuated to Roisel. The round trip was nine hours, and as an ambulance carries only four patients and at one time there were 180 men waiting, you can imagine the congestion. We made the men as comfortable as we could and there was never a murmur. The trouble was caused because the Huns were retreating at the rate of ten miles a day and we had to travel about fifteen miles a day to overtake them. It is impossible to transport mobile hospitals at that rate of speed. Travel was rendered very difficult because the Boche blew up the bridge over the LaSalle. In the Hindenburg show there were 2,511 wounded, sick and gassed men and 1,266 walking wounded.

"At St. Souplet there were 255 stretcher cases and 3,433 walking wounded. The latter were loaded on motor lorries and carried to railhead from whence they were taken to the evacuation hospital.

"At that time, also, the influenza epidemic among the civilians was at its height, and Capt. Bobo with Lieut. Theodore Reed of Field Hospital 106 established an annex across the road for those cases. Between times everybody helped out.

"Yes, we kept on the job pretty steadily, but you get used to that. Now, I think I am just beginning to get tired. I think the parade was too much for me," laughed Colonel Hutton.

Colonel Fiske, in speaking of his patients at Dartford, said, "Naturally the men improved more rapidly in England than they could be expected to do in the evacuation hospitals in France, where they were either under fire or subjected to air raids. Their nerves had a chance to grow steady again, when they got across the channel."

"We usually received our convoys between 10 and 11 o'clock at night and nobody

ever went to bed until the new patients were all in and settled. Everyone would turn in and carry stretchers. The trouble we had with the enlisted men doing hospital work was that they all wanted to be transferred to a combat unit; fortunately there is an order forbidding that.

"They were just like a lot of youngsters. As soon as they could get around they were in mischief. They would steal away from the grounds and cut up all sorts of pranks.

"But I think the American soldier is as game a chap as ever walked the earth. No matter how often we had to go at a man for dressings or give an anesthetic for scrappings and that sort of thing, he never winced.

"The Red Cross kept them in wonderfully good humor. They conducted concerts, moving picture shows and all sorts of entertainments. They supplied the boys with all kinds of little comforts and did not forget the doctors, either.

"I do not know what we would have done without the Red Cross. It gave us vast quantities of surgical dressings and other supplies."

Touching on the more strictly professional phase of his experience abroad, Col. Fiske said:

"We had some remarkably successful cases of bone grafting and nerve suturing. At one time there were forty-eight nerve cases, all of which were operated upon. When the men left the hospital, after two or three months, thirty-eight of that number were beginning to show signs of nerve regeneration. We lost track of the other ten, so we could not tell whether the operations were successful or not. The nerve surgery was under Major John Meagher of Brooklyn, but I did some of it myself. I could not keep my hands out of it. All the operations were arm and leg cases where the suturing was of large nerve trunks.

"When a large amount of bone tissue had been destroyed we resorted to bone grafting and had excellent results. Capt. Samuel L. Fisher, also of Brooklyn, was in charge of this work."

All the doctors were given a chance for service in France. Col. Fiske spent six weeks on the continent, and was there when the armistice was signed. It was the Kings County Hospital Unit which served at Base 37.

The American boys while at Dartford

had their first chance to see royalty at close range. King George and Queen Mary, accompanied by Princess Mary visited the hospital and escorted by Col. Fiske, made a round of the wards and chatted in the most friendly fashion with the patients.

Miss Bissell, who went overseas last April with the Wellesley Unit under the auspices of the Red Cross, also had strenuous experience in the line of duty. She was at Red Cross Mobile Hospital No. 114 and

"There was not a thing we could do but stay right there and trust to luck. Fortunately no one was hurt" said Miss Bissell in recalling the incident. The week her unit was in Paris waiting for assignment there were three aid raids in one night.

Ask Miss Beatrice M. MacDonald, who lost the sight of her right eye while on duty with an American Red Cross team which was loaned to the British for service at Casualty Clearing Station No. 61 near Bophling in Belgium, about sixty miles from



American Red Cross

The "Victory Parade" at the American Base Hospital, Dartford, near London, on Nov. 11, when the signing of the armistice was announced. The men on crutches were invited to parade in automobiles, but most of them preferred to walk, and they occupied honored places in the line of march.

was present during the Chateau Thierry drive when the hospital was subjected to a German air raid on July 15, at which time four persons were killed and several wounded.

While her party was on its way to the Toul sector in September, the train was stopped many hours because a short distance ahead was a train filled with hand grenades and star shells which had been struck by a bomb from a Boche plane.

Dieppe, about her work and she replies, "I want to forget it all except that we have won the war. And to think that it only took our boys six months to do it after they really got on the job. Our boys are the best on earth. I just went over to help them, and I hope I did some good. They deserved the best in the world."

Miss MacDonald served twenty-one months overseas and has been awarded the Distinguished Service Cross by Secretary

of War Baker and has also received the British Military Medal for bravery in the field and the medal of the British Red Cross.

Miss Amy Patmore, chief nurse of Base Hospital No. 8 at Sauvigny in France, where there are 14,000 beds, sums up what appears to be the feeling of all overseas doctors, nurses and social workers.

"We gave the very best of ourselves to the work and considered it the greatest privilege to be permitted to give. In my belief that was the spirit of all the doctors, the nurses and the Red Cross workers. And it was the greatest privilege that could ever be accorded to anybody on this earth to be allowed to serve those magnificent boys of ours. Nobody in this country, nobody who has not worked with those men over there can have any idea of their spirit, their courage, their grit and endurance. Unflinchingly they faced the worst horrors this world has ever known. They are the most glorious on earth."

And from one who has been privileged to go closer to those horrors than any woman was permitted, and who knows the price our boys paid for their patriotism, comes a final tribute and perhaps the highest one.

"Our boys did not need any reforming" said Col. Montgomery. "They attended to their religious duties each according to his own respective faith. We had our regimental chaplains, and fine chaps they were, who were always ready to go over the top with their boys. But apart from all that, when a man can expect death any moment and walks about unafraid, he is not a subject for reformation."

And one parted from Col. Montgomery feeling that the sentiment he entertained for our boys was much like that expressed by Stephen Decatur for our country, "May she always be in the right but—our country—right or wrong."

An Unusual Reason for Exemption
from military service came out when a man said to the members of a local exemption board: "I don't feel that I can go into the army, because I am a vegetarian." The chairman looked at the man and answered: "Well, good Lord, man, we want you to fight the Germans; it isn't necessary to eat them."

ACTIVITIES OF THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY DURING THE WAR.

(Continued from page 328)

These courses of instruction not only enabled the army to increase the supply of specialists for hospitals, but will also be of great benefit to the civil communities when these officers return to the practice of medicine at their homes.

In conclusion it may be said without fear of contradiction that the Medical Department of the U. S. Army during the present war has furnished for the American soldier, both at home and abroad, a greater degree of sanitary protection against disease and a higher grade of medical and surgical attention than has ever been supplied to the soldiers of any other country in this or any previous war. Had it not been for the unpreventable epidemic of influenza the success in maintaining low sick rates would have been truly marvelous. The benefits of the activities of the Medical Department are apparent not only today in the preservation of health and in the prompt cure of the sick and wounded, but will be increasingly evident in the future when the seriously wounded again become happy and self-supporting citizens as a result of the high grade surgical and reconstruction service provided for this class of cases. Credit is due to the officers of the Medical Department of the Regular Army who, in peace days of slow promotion and seemingly little opportunity, persevered in preparing themselves for this great emergency, and equal credit is due to the physicians, the dentists, the veterinarian and others from civil life, who unhesitatingly abandoned their civilian pursuits, sacrificed their personal interests and gave their best to the service of their country in the Medical Department,

cheerfully adapting themselves to the hardships and unfamiliar conditions of military life. Both groups of professional men offered to the nation all they possessed, and many made the supreme sacrifice in the performance of duty. In answer to the call on the civil profession, equal response was made by the young and by the old, by the specialist and by the general practitioner. City and country responded with similar enthusiasm. Special thanks are due to those officers from civil life who, long after the excitement of the actual war has passed, must continue in the service attending the needs of the wounded, while many of their comrades, both in the Medical Corps and in the line, are rapidly returning to their homes and ordinary vocations. In view of the enormous preponderance in the army of physicians fresh from civil life it may be said without reflection on the medical officers of the regular army, that the great achievement of the Medical Department in medicine, in surgery and in sanitation is primarily the work of the civil profession of the United States and is due to the patriotism, fidelity and ability of that great body of practitioners. It is to be hoped that one of the results of the great war will be the closest sympathy between the Medical Corps of the Army and the medical profession of the country, resulting in the development of a firm conviction in the minds of all civilian practitioners that preparedness for war conditions in the case of each and every physician of military age is a fundamental necessity for attainment to the highest type of citizenship. In this brief review of the Medical Department activities no reference is made to the physicians who, as members of Local and Advisory Boards, participated in the operation of the Draft, but who could not, under the law, be commissioned in the

military service of the Army. Great injustice would be done, did I omit to call attention to the difficult task which was so well and faithfully performed by these physicians connected with the Draft, and which forms another of the important contributions made by the American medical profession toward the winning of the World War.



Thyroid Extract in Myxedema and Hypothyroidism.—In the treatment of these cases Dock begins with a small dose of thyroid extract, about 1 grain, t. i. d., increases it rapidly until physiologic effects appear, and then reduces the dose until a desired condition has been reached. He advises that the dangers and precautions in such treatment be kept in mind.

A Study of the Functions of the Thyroid Gland.—According to Stewart (*Southern Med. Jour.*, May, 1919) Wright holds that the opsonins of the blood are dependent upon the secretions of the thyroid gland. To prove this, Stepanoff and Morbi by many experiments showed the disappearance of the opsonins upon the extirpation of this gland. Thus we see at a glance that the thyroid protects us from infectious diseases, as we well know that the opsonins of the blood are the antagonists of all infectious organisms. For further proof, Charrin showed how dogs were easily infected by contagious diseases after extirpation of the thyroid. Greenfield, Murray and Lanz, after much study of persons suffering from myxedema, stated that they often died of tuberculosis or some other infectious disease. The protective rôle of the thyroid gland against infectious diseases is further evidenced, according to Roger, Garnier and

Torre, by their observation of the fact that during an epidemic of typhoid, without exception persons with diseased thyroids succumbed to the fever.

That the thyroid gland governs oxidation has been shown by Lorand and Moebius. For instance, a hyperactivity of the secretion, as in Graves' disease and fevers in which we have increased oxidation, is nearly always followed by an exhaustion of the thyroid function, a consequent lowering of oxidation and the resultant obesity usually observed following low, continued fevers.

Not only does the thyroid protect us from infectious disease, but it is also protects from certain drugs, especially alcohol and chloroform. De Quervain, Heretoghe and Sajous all showed by many experiments that animals with a healthy thyroid withstood alcohol without intoxication in much greater quantities than those with degenerate glands. This was also found true with chloroform. In fact, dogs which had their thyroids removed invariably died from chloroform narcosis.

The thyroid also has peculiar control of that function of the brain called the mind. Myxedematous people, as we all know, are apathetic, slow of thought and action, defective memory, dull and stupid. The wonderful effect of the thyroid upon the intellect has been many times demonstrated by the administration of the extract to cretinous children. They would grow brighter, learn faster and become more active in a very short time.

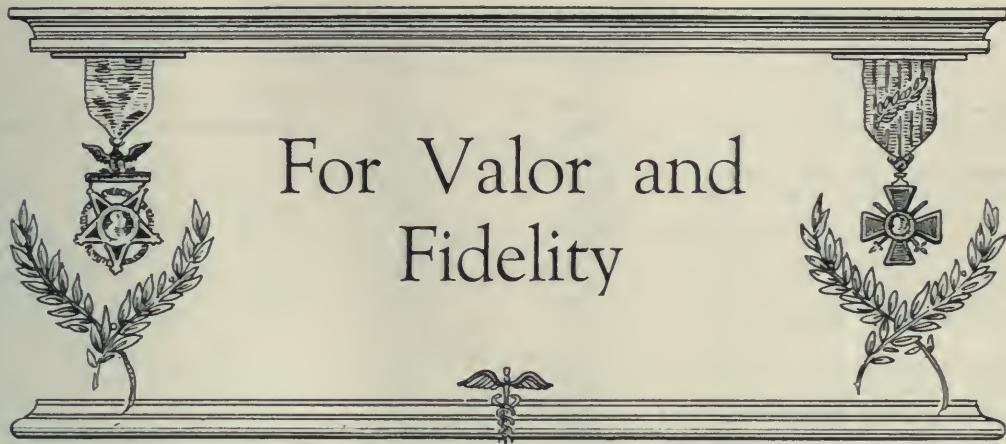
The thyroid also, as has been observed by many investigators, controls the sexual functions of the body. The sexual appetite is lowered or lost in those with diseased or degenerate thyroids. A full, well developed thyroid, in man or women, is indicative of a keen sexuality. A stringy throat, a wrinkled neck is oftentimes positive evidence of sexual apathy.

The thyroid gland controls to a marked degree, as untold experimental evidence has shown, the digestive and metabolic functions of the body. As is further evidenced by those who have a marked disease of the gland, they are always people who seem poorly or improperly nourished. To determine a case of thyroid deficiency, or hypothyroidism, when it is not one of those well-known and well-marked diseases familiar to us all, is often difficult; yet its

extreme importance should make us give each symptom of thyroid trouble very great weight, altho other conditions may point to some different disease. A harsh, dry skin, excess of fat, waxy pallor, wrinkled hands, flabby muscles, premature grayness of the skin and hair, falling of the hair, especially in patches as in alopecia, poor appetite, dull mentality, melancholia, constipation, watery menstruation, sexual torpor, changes in the other ductless glands, increased tendency to autointoxication—these are some of the symptoms of a deficient thyroid.

The Pluriglandular Syndrome.—Leonard Williams in his work "Minor Maladies" says: "It is well for the reader to understand that the interdependence of the endocrine glands renders it very difficult in the present state of our knowledge to be sure which particular gland is at fault. It is exceedingly likely that some of what we now take to be manifestations of thyroid insufficiency of slight degree, are in reality due to insufficiency of some other gland, partly opponent and partly complemental, such as the pituitary or the adrenal, which may be stimulated into increased activity by the exhibition of thyroid extract. . . In the case of adrenal insufficiency, some of them, notably the infantilism, the low temperature, the hairlessness and pigmentation are prominent symptoms. It is therefore evident that when one member of the endocrine hierarchy is at fault, the mere disturbance of the glandular balance is sufficient to produce certain symptoms of which one can only affirm that they point to a disturbance somewhere in the endocrine system—the pluriglandular syndrome, as it is called."

The Hormones and the Vegetative Nervous System.—Gallotti (*Archivos Brasileiros de Medicine*, Jan., 1919) argues that the harmonious action of the involuntary organs is due in large part to the hormones influencing the autonomous and the sympathetic nervous system. He reviews the action of the different endocrine glands in turn, saying that the relations between the hormones and the vegetative system must be studied before we can use organotherapy intelligently.



For Valor and Fidelity

*"Heroes all
Who heard the clarion voice of Duty call."*

Words are the mere chattels of the mind. Emotion is a dumb thing. Besides, it is hard to be eloquent in the face of the expected. Groping for the language of tribute, tribute to the achievement of the doctors who have been honored in the service of their country, we find ourselves strangely at a loss for an expression that will be as dignified as the occasion that calls it forth. Again and again there comes to us, repeatedly, insistently, a single phrase: a triumphant "I told you so!" For who expected less of the doctors of the Nation than they achieved? Of what our army would do, we were for a long time in doubt. Not until Château Thierry, and St. Mihiel, and the Argonne were we sure that our soldier boys would fight so bravely and magnificently, and the hearts of those at home swelled with pride, and no little measure of relief, when they read the glowing accounts of those battles. But of the men in the Medical Corps there were at no time any doubts. Self-sacrifice and exposure to danger are a commonplace, every-day incident to the doctor, and it was an easy thing for him to expose himself to the hazards of shell and gas in order to serve the men who were serving in so splendid a cause. Their response to the call of their country was not a hesitant one. Presi-

dent Wilson's definition of the struggle as one for the liberation of humanity appealed strongly to men who, when they chose their profession, dedicated the better energies of their lives to the service of humanity. For them, the war meant merely a change of environment and not a change of habit; the comforts and conveniences of the operating room at home were surrendered for the discomforts of the field dressing station or the damp dugout. In other respects, their work remained the same; always subject to the need of the injured, always at the call of the suffering ones. And if this call subjected them to privation, self-denial and constant danger, they would be the last in the world to claim any special honor for doing what it had been their practice to do for so long, what it was in their natures to do without hesitation. The doctors of the American Army did what was expected of them, what the tradition of their profession had taught us to expect of them. In view of this splendid tradition, we feel more could not be said. And we are sure that those who were singled out for special honors will accept the official tribute as one not only to themselves but to the whole profession as well. In honoring them, the government has honored the entire medical profession of America.

AMERICAN PHYSICIANS DECORATED BY THE UNITED STATES GOVERNMENT.¹

NAME	RANK	CORPS	CITATION
Andrew, A. Platt	Lieut. Col.	A. C.	Distinguished Service Medal
Arrants, Wm. Ross	Lieut.	M. C.	Distinguished Service Cross
Baker, Frank C.	Colonel	M. C.	Distinguished Service Medal
Barber, Thomas M.	Lieut.	M. C.	Distinguished Service Cross
Bass, Urbane F.	Lieut.	M. C.	Distinguished Service Cross
Beasley, Shadworth O. (deceased)	Major	M. C.	Distinguished Service Cross
Beeukes, Henry	Lieut. Col.	M. C.	Distinguished Service Medal
Billings, Frank	Colonel	M. C.	Distinguished Service Medal
Bingham, Ernest G.	Colonel	M. C.	Distinguished Service Medal
Black, Frederic Wallace	Major	M. C.	Distinguished Service Cross and Croix de Guerre
Blake, Joseph A.	Colonel		Distinguished Service Medal
Blood, Robert O.	Capt.	M. C.	Distinguished Service Cross
Bradley, Alfred E.	Colonel	M. C.	Distinguished Service Medal
Bunch, Henry Edgar	Capt.	M. C.	Distinguished Service Cross
Burgher, Emil H.	Major	M. C.	Distinguished Service Medal
Clark, Albert P.	Lieut. Col.	M. C.	Distinguished Service Medal
Comfort, Chas. W.	Capt.	M. C.	Distinguished Service Cross
Condon, Wm. J.	Capt.	M. C.	Distinguished Service Cross
Crile, George C.	Colonel		Distinguished Service Medal
Crookston, William J.	Colonel	M. C.	Distinguished Service Medal
Crum, Leo J.	Lieut.	M. C.	Distinguished Service Cross
Darnall, Carl R.	Colonel	M. C.	Distinguished Service Medal
Davis, Howard H.	Capt.	M. C.	Distinguished Service Cross
Dickinson, Dwight, Jr.	Asst. Surg.	U. S. Navy	Distinguished Service Cross
Diener, Louis	Capt.	M. C.	Distinguished Service Cross
Doudna, John F.	Capt.	M. C.	Distinguished Service Cross
Duffy, Mack M.	Lieut.	M. C.	Distinguished Service Cross
Edie, Guy L.	Colonel	M. C.	Distinguished Service Medal
Finney, J. M. T.	Brig. Gen.	M. C.	Distinguished Service Medal
Flint, Joseph M.	Lieut. Col.	M. C.	Distinguished Service Medal
Gage, Geo. H.	Capt.	M. C.	Distinguished Service Cross
Gee, Athel J.	Lieut.	M. C.	Distinguished Service Cross
Goldthwait, Joel E.	Colonel	M. C.	Distinguished Service Medal
Hall, James G.	Capt.	M. C.	Distinguished Service Cross
Howard, Deane C.	Colonel	M. C.	Distinguished Service Medal
Howe, Geo. P. (deceased)	Lieut.	M. C.	Distinguished Service Cross
Hutton, Paul C.	Colonel	M. C.	Distinguished Service Medal
Ireland, Merritte W.	Maj. Gen.		Distinguished Service Medal
Jackson, Horatio N.	Major	M. C.	Distinguished Service Cross and Croix de Guerre
Jones, Glenn I.	Lieut. Col.	M. C.	Distinguished Service Medal
Jones, Percy L.	Colonel	M. C.	Distinguished Service Medal and Croix de Guerre
Jones, Thomas E.	First Lieut.	M. C.	Distinguished Service Cross
Keenan, Wallis H.	Lieut.	M. C.	Distinguished Service Cross and Croix de Guerre
Keller, William L.	Colonel	M. C.	Distinguished Service Medal
Lee, Burton J.	Colonel	M. C.	Distinguished Service Medal
Lisa, James R.	Lieut.	M. C.	Distinguished Service Cross
Lyster, Theo. C.	Colonel	M. C.	Distinguished Service Medal

¹This list is not complete for new awards are being made daily, but this is doubtless the most complete list thus far published.

NAME	RANK	CORPS	CITATION
McCaw, Walter D.	Colonel	M. C.	Distinguished Service Medal
McGinnis, Geo. E.	Capt.	M. C.	Distinguished Service Cross
McKernon, James	Colonel	.	Distinguished Service Medal
McKibben, James M. (deceased) ..	Capt.	M. C.	Distinguished Service Cross
McLelland, Wm. D.	Capt.	M. C.	Distinguished Service Cross
Manton, Walter W.	Capt.	M. C.	Distinguished Service Cross
Martin, Claude A.	Capt.	M. C.	Distinguished Service Cross
Maus, Louis M.	Colonel	M. C.	Distinguished Service Cross
Mayo, William	Colonel	M. C.	Distinguished Service Medal
Miller, Reuben B.	Colonel	M. C.	Distinguished Service Medal
Miner, Donald	Major	M. C.	Distinguished Service Cross
Morison, James H. S.	Lieut.	M. C.	Distinguished Service Cross
Motley, Robert E.	1st Lieut.	D. C.	Distinguished Service Medal
Mount, James R.	Colonel	M. C.	Distinguished Service Medal
Munson, Ed. L.	Brig. Gen.	M. C.	Distinguished Service Medal
Murdock, Robt. H. (deceased)	Lieut.	M. C.	Distinguished Service Cross
Murphy, Fred T.	Colonel	M. C.	Distinguished Service Medal
Myers, Chas. W.	Lieut.	M. C.	Distinguished Service Cross
Peck, Charles H.	Colonel	M. C.	Distinguished Service Medal
Petty, Orlando H.	Asst. Surg.	U. S. Navy	Distinguished Service Cross
Pincoffs, Maurice E.	Capt.	M. C.	Distinguished Service Cross and Croix de Guerre
Powless, Josiah A.	Lieut.	M. C.	Distinguished Service Cross
Pratt, Lester L.	Asst. Surg.	U. S. Navy	Distinguished Service Cross
Ray, John (deceased)	Capt.	M. C.	Distinguished Service Cross
Rentfro, Chas. C.	Lieut.	M. C.	Distinguished Service Cross
Rhoads, Thomas L.	Colonel	M. C.	Distinguished Service Medal
Rosenwald, John P. (deceased) ..	Lieut.	M. C.	Distinguished Service Cross
Royster, Thomas R.	Lieut.	M. C.	Distinguished Service Cross
Ruffner, Ernest L.	Colonel	M. C.	Distinguished Service Medal
Russell, Frederick F.	Colonel	M. C.	Distinguished Service Medal
Salmon, Thomas W.	Colonel	.	Distinguished Service Medal
Schochet, Sydney S.	Lieut.	M. C.	Awarded British Milit'y Cross
Siler, Joseph P.	Colonel	M. C.	Distinguished Service Medal
Srygley, Elam F.	Lieut.	M. C.	Distinguished Service Cross
Stark, Alexander N.	Colonel	M. C.	Distinguished Service Medal
Thayer, William S.	Brig. Gen.	M. C.	Distinguished Service Medal
Tuttle, Arnold D.	Colonel	M. C.	Distinguished Service Medal
Vaughan, Victor C.	Colonel	M. C.	Distinguished Service Medal
Wadhams, Sanford	Colonel	M. C.	Distinguished Service Medal
Weaver, Ross E.	Lieut.	M. C.	Distinguished Service Cross
Weber, John F.	Lieut.	M. C.	Distinguished Service Cross
Wesselhoeft, Conrad	Capt.	M. C.	Distinguished Service Cross
Wheat, Harry R.	Lieut.	M. C.	Distinguished Service Cross
Whealock, Frank R.	Capt.	M. C.	Distinguished Service Cross
Williams, Clarence M.	Capt.	M. C.	Distinguished Service Cross
Williams, Frank Leo	Lieut.	M. C.	Distinguished Service Cross
Wilmer, William H.	Colonel	M. C.	Distinguished Service Medal
Winter, Francis A.	Brig. Gen.	M. C.	Distinguished Service Medal
Wolfe, Edwin P.	Colonel	M. C.	Distinguished Service Medal
Young, Hugh H.	Colonel	M. C.	Distinguished Service Medal



In Memoriam

*"If ye break faith with us who die,
We shall not sleep, tho poppies blow in Flanders fields."*

—McCrae

A communication received from Surgeon-General Ireland early in May gives the following data in regard to the fatalities among medical officers during the war:

Killed in action	45
Died of wounds	26
Died of accident	5
Lost at sea	4
<hr/>	
Total deaths	80

A further statement from the Surgeon-General's office also gave a list of 290 medical men who had died from disease while in active service. Up to May, 1919, therefore, 370 doctors had made the "supreme sacrifice" for their country. These figures are only approximate, for the statistics of the War Department have not been completed, and probably will not be for some time.

In paying tribute to the medical men who gave their lives while in active service one thought persists, "Greater love hath no man than that he shall give his life for another."

Bravely, fearlessly they went down into the Valley of the Shadow, totally forgetful of self and with only one purpose, one aim before them, to relieve the wounded and ease the last fleeting moments of the dying. Probably to all of these doctors life was never sweeter or more desirable. The things we cherish are never dearer than

when we are confronted by the prospects of losing them. Many had dear ones back home whom they knew were praying for their safe return. The future, aye, what plans they had for the future! But when the call to service came and the occasion arose to do their duty, did they falter, did they give one thought to the dangers that threatened? Not for a moment did they hesitate. Into a hell of shot and shrapnel they went, knowing full well the chances they were taking. But in this hell there were men in agony, men whose life blood was flowing fast, men whose eyes were growing dim, but whose lives might be saved by timely and skilful ministrations.

And so spurred by that spirit which has always actuated the true physician in moments of great emergency, they went on to where they were needed most. Many seemed to bear a charmed life. Their faithful service and indifference to danger seemed to serve for many almost as a coat of mail. But not for all and the list that follows tells of many who went forth—and did not come back.

There is little we can say aside from, rest, brothers, rest. Nobly and well you have played your part, and tho our hearts are sad and heavy when we think of the homes that will know you no more, of the loved ones denied forever the grasp of your hands, the sound of your voices, the joys of your companionship, we are proud of

your record and the way you have shown the world that the American physician can die as nobly and unselfishly as he knows how to live.

Let no one say, therefore, great as is your loss to the Nation and those who prized your love and friendship, that you have died in vain. The nobility of your sacrifice has shown us anew the majesty of that death which comes "in line of duty"; in showing us how to die for an ideal you have taught us how to live for a purpose.

PHYSICIANS KILLED IN ACTION.*

Baldwin, Joseph F., 1st Lt., M. C.
 Barber, Timothy L., Capt., M. C.
 Beasley, Shadworth O., Major, M. C.
 Brown, Arthur S., 1st Lt., M. C.
 Brown, Presley R., 1st Lt., M. C.
 Clair, Frederick D., 1st Lt., M. C.
 Craig, William F., 1st Lt., M. C.
 Daniels, Hoddie W., Capt., M. C.
 Dudenhofer, Joseph E., Capt., M. C.
 Fair, Wilford A., 1st Lt., M. C.
 Finkelberg, Morris, 1st Lt., M. C.
 Fitzsimmons, William T., 1st Lt., M. C.
 Gochnau, Orlando M., 1st Lt., M. C.
 Hartwig, Gerhard F., 1st Lt., M. C.
 Herrington, William G., 1st Lt., M. C.
 Hudson, William B., Capt., M. C.
 Jett, Richard L., Capt., M. C.
 King, Emil, 1st Lt., M. C.
 Leonard, Jerome M., 1st Lt., M. C.
 Linch, Ballard C., 1st Lt., M. C.
 McQuillan, James A., 1st Lt., M. C.
 Morgan, Harold S., 1st Lt., M. C.
 Murdock, Robert H., 1st Lt., M. C.
 Oglesby, Knowles G., 1st Lt., M. C.
 Post, Dana C., 1st Lt., M. C.
 Reed, Stephen J. H., Capt., M. C.
 Renner, J. W., 1st Lt., M. C.
 Sanders, Frank B., 1st Lt., M. C.
 Saunders, Alonzo W., 1st Lt., M. C.
 Sherwood, Robert A., 1st Lt., M. C.
 Skilling, John G., 1st Lt., M. C.
 Summers, Davis K., 1st Lt., M. C.
 Vermilyea, Sidney C., 1st Lt., M. C.
 Webster, Harrison B., Major, M. C.

PHYSICIANS WHO HAVE DIED OF WOUNDS.

Bass, Urbane F., 1st Lt., M. C.
 Beal, Howard W., Major, M. C.
 Bull, William S., 1st Lt., M. C.
 Burrell, G. O., 1st Lt., M. C.
 Davis, Reese, 1st Lt., M. C.
 Ellis, J. G., Jr., Capt., M. C.
 Faulds, Winfield S., 1st Lt., M. C.
 Frazier, Francis V., 1st Lt., M. C.
 Gibson, Burgess A., 1st Lt., M. C.

Glascock, Alfred, Capt., M. C.
 Goss, Paul Lewis, 1st Lt., M. C.
 Hanson, Dave T., Capt., M. C.
 Hilgard, Geo. E., Major, M. C.
 Joyce, Whitney H., 1st Lt., M. C.
 Klingen, Oscar M., 1st Lt., M. C.
 Lieser, William A., 1st Lt., M. C.
 McMichael, Charles P., 1st Lt., M. C.
 McQuaid, Arthur F., 1st Lt., M. C.
 MacFarland, James, 1st Lt., M. C.
 Marowitz, Max, 1st Lt., M. C.
 Mead, Theodore F., Capt., M. C.
 Mooney, Edward L., 1st Lt., M. C.
 Olstein, Matthew F., 1st Lt., M. C.
 Powers, Ralph E., 1st Lt., M. C.
 Ranson, Glen D., 1st Lt., M. C.
 Ray, John E., Capt., M. C.
 Reed, Clinton V., 1st Lt., M. C.
 Rosenwald, John P., 1st Lt., M. C.
 Ryman, Herbert D., Capt., M. C.
 Sage, Abner P. H., 1st Lt., M. C.
 Shedd, Clyde Everett, 1st Lt., M. C.



Sunlight and Sense.—It is a common form of insult to compare a human being to an animal, but, to anyone who knows animals well, the comparison would be regarded as a compliment. The animal is the most temperate, the most gentle, the most amiable creature in the world. Indeed, it is one of the bitter facts of life that humans are not nearly as nice as animals nor as sensible. One remembers the delightful scene in Rostand's "Chanticleer," where two cocks are fighting, clawing and mangling each other viciously, when one of the barnyard characters of the play (the hen pheasant, is it?) enters. She is shocked beyond words at the sight of such depravity. "Gracious," she exclaims, "stop behaving like human beings!" The French poet Rostand knew animals and he knew men, and men suffered by the comparison. In one respect, certainly, the animal world has always shown its superiority, and that is its realization of the importance of sunlight. We, who have scientifically come to the conclusion that sunshine is the greatest of germicides and health promoters, who have conceded its beneficial properties, have shown ourselves inferior in intelligence to the animals who, without science to aid them, have always placed a just and abiding estimate on the value of the sun's curative

*This list is not complete owing to difficulty of getting exact names and other information.

rays. Animals rise with the rising of the sun, and they retire with its setting. They confine their activities entirely to the period of the sun's daily rule, preferring it as a timepiece rather than a bit of machinery with a dial and two hands. One frequently hears the expression, "As healthy as an animal." Animals are healthy because they love the sun and avoid the dark hours which are for rest. They spend their energies only during the hours when the life-rays of the sun are poured into their bodies, with its stimulating effect on their energies. And when dark comes, when wasted energies cannot be replenished, they rest.

Recently, man, the pale creature of the night, determined to mend his ways and imitate those of the animal world more closely. He alone, of all creatures, had fallen into the evil way of wasting the precious hours of sunlight and coming to life only when the healing rays of Sol had sunk below the horizon, exposing himself to the depressing influence of the night. Penitent, he decided to advance his clocks one hour and thus give himself one more hour of sunshine. For two summers he enjoyed the benefits of Daylight Saving, basked one hour more in the clean light, played an extra hour of tennis and golf, and reaped the rewards of health and the sound fatigue that brings peaceful rest at night. Some day lovers of statistics will compute the healthful results of this intelligent plan of living, and it will be found that a heavy balance was entered on the side of both health and happiness in the ledger of human wellbeing. But a handful of legislators, ashamed of this descent (descent they no doubt thought it!) to the level of the animal state, decided to restore man to his pathetic and lonely place as the king of all creatures, and the Daylight Saving Law was repealed. "I am opposed," said one mighty champion of human and Divine Law in Congress, "to usurping not only the powers of the Executive and States, but those of God Almighty, and seeking to fix the time when the sun shall rise and set." Brave, eloquent Senator, does he not know that God Almighty made the sun and that man made the clocks; that the booming of the sun in the east is Nature's rising alarm, and that the clock by which the Senator rises defeats the schedule

that Heaven has meant him to observe? The lowly hen is more pious than the Senator, and she can quote Divine Law with less offense. More frank and less offensive is the Congressman who asked for a repeal of the law because it took the farmers out into the fields while the dew was there, "and everyone knows that when dew gets on the body it makes sores." Blushing with the sense of our deep and criminal ignorance, we accept this verdict of science as to the malevolent properties of dew; and we are secure in the thought that, with such mighty champions of Divine and Natural Law at the helm of our State, we cannot wander far on the path of error and sin. But we fear that there are some less gentle citizens of the republic, so corrupt in their love of God-given sunlight, so depraved in their yearning for blue skies and dew-drenched swards, that they will not accept supinely this pilfering of a gift that comes straight from Heaven. They will resent deeply this railroading of Nature, this amputation of an hour that has contributed so much to happiness and health and out-of-door contentment. For two precious summers they have known the joy of an added sixty minutes of sunshine, of lolling in golden rays, of physical and spiritual growth and expansion; and a deep growl of discontentment will issue from the bosoms of countless thousands to whom that hour has been a Godsend. If this growl grows to a roar of anger, we will not blame them, for the repeal of the Daylight Saving Law is a masterpiece of purblind legislation, unrivaled in its stupidity, unmatched in its consummate, blank, stark incompetence.

The Soldier as Educator.—The discharged soldier, particularly the soldier who has seen service abroad, occupies a very special and very honored position in the community to which he returns. However modest his station before the war, he comes back with an atmosphere of romance and glory about him which gives him a new and well deserved prestige. The younger element look up to him admiringly, the adults of the community are both admiring and grateful, and his friends and relatives feel a greater affection for him. In innumerable cases, army service has given the

soldier new manhood, added strength of character, and he has come back to his old home surroundings fitted for a leadership among his associates which they are only too ready to accord him. His place is a high one, his authority is secure. Contemplating this fact, there comes to mind the thought that the returning soldier represents an opportunity for the government that is rare and precious; for, thru the returning soldier, the government can convey a message to the remotest corners of the country and convey it in such a way as to assure it being heeded conscientiously. The education of the soldier varies according to the man and not all are fitted for the same responsibility, but in one respect every soldier can be successfully utilized as an educator. Before being discharged from the Army, every man receives careful instruction in personal and general hygiene and he is encouraged to apply the lessons in hygiene and sanitation learned in the service to an improvement of conditions in his home community. In many cases, especially in those of men coming from small, isolated country centers, their experience in the army is their first association with group sanitation as well as individual cleanliness, and the habits they form in the Army will cling to them long after they have left it, perhaps permanently. These habits they will bring with them on their return. Both as an unpretentious model to imitate and as a conscious educator in matters of hygiene, the homecoming soldier can serve as a persuasive factor in improving sanitary conditions in every community. This fact the government has realized, and one must warmly commend the vision it has shown in utilizing the educational value of the discharged army man. This is propaganda of the finest sort, and it is to be hoped that the near future will see a vast improvement in community sanitation and health as a consequence of this course.

at their full worth. Certain of the surgical developments will not be well adaptable to civil practice for it must be borne in mind that civil surgery differs in many respects from army surgery. On the other hand, other developments of the war from the medical and surgical points of view can be applied with success in ordinary practice. Of these developments, that which appears likely to be of the greatest value in civil practice is physical therapy. The worth of no form of treatment has been so emphasized by the experiences of the war as physical therapy. Moreover, such treatment is eminently applicable to the conditions of civil life, especially in a country like America in which street, railroad and industrial accidents are more prevalent than in any other part of the world.

The time has now come to take a survey of the developments, medical and surgical, of the war and to endeavor to form accurate conclusions as to their practical value. A special number of the *United States Naval Medical Bulletin* has just been published by the Bureau of Medicine and Surgery of the Navy Department, which contains a remarkably comprehensive report on medical and surgical developments of the war by William Seaman Bainbridge, Lieutenant-Commander, Medical Corps, United States Naval Reserve Force. Commander Bainbridge has enjoyed exceptionally favorable opportunities for observing medical and surgical conditions in England, France, Belgium and to some extent in Germany. The report comprises the outcome of observations on the Western Front and in England during December, 1917, and the first six months of 1918, made pursuant to the instructions of the Surgeon-General, United States Navy. There have also been added certain data obtained while in Germany during the autumn of 1915. In making this survey, the following objects were kept constantly in mind:

1. To record the surgical lessons of the war based on the experience of our Allies.
2. To study anything likely to be of value to the United States Naval Medical School, Washington, D. C., or helpful in the preparation of medical men and hospital corpsmen for active service.

A critical examination of Commander Bainbridge's report indicates that these objects have been attained with a very note-

Some Medical and Surgical Developments of the War.—The medical and surgical developments of the war have been many and important. Up to the present time the perspective is hardly clear, for many events are yet too close to permit us to estimate the developments therefrom

worthy degree of success. The salient points in connection with the medical and surgical developments of the war are considered carefully and the result is that the ground is well covered. With regard to the treatment of wounds, the author points out that views have oscillated a good deal as to the comparative merits of asepsis and antisepsis during the progress of the war.

In September, 1915, Prof. Kocher of Berne remarked to the author that "the great lesson of the war so far is 'back to antiseptic surgery.' Asepsis is not enough." Three years later in June, 1918, Major A. L. Lockwood, D. S. O., said that "one of the greatest lessons of this war is that aseptic surgery and not antiseptic surgery should be practiced, the former in all cases, the latter associated with it in selected cases."

From the purely therapeutic viewpoint the surgery of wounds in the present war may be grouped under fairly approximate chronologic headings as follows:

1. The period of ordinary antiseptic agents, second half of 1914 and first half of 1915.
2. The period of wound drainage, combined with antiseptics, 1915.
3. Introduction of hypochlorites, later in 1915.
4. Evolution of the Carrel technic of intermittent wound instillation, early in 1916.
5. Ascendancy of Bipp method, 1916.
6. Period of approximately equal use of the Morison and Carrel methods, 1916-17.
7. Prominence of flavine and colored wound pastes, such as brilliant green, 1917.
8. Progressive general adoption of wound excision method, which had its beginnings early in 1916, late in 1917.
9. Period of primary wound suture, immediate or delayed, 1917-18.
10. Period of attempted selection, adaptation and standardization, late 1918.

All these methods are described in detail and the text is illuminated by a large number of excellent illustrations.

A particularly interesting feature of the *Bulletin*, because of the general paucity of information on the subject, is an account of the treatment of war wounds by the Germans. Late in 1915 when the author was in Germany the ambulance and hospital organization was extremely efficient. The progress made in physical therapy was

very striking. Before the war, physical therapeutic departments had been established in connection with many hospitals thruout Germany showing, of course, the importance attributed to this line of treatment in the rehabilitation of the wounded.

A chapter of the *Bulletin* which is especially valuable is that which refers to the treatment of joint lesions by Dr. C. Willems, the noted surgeon in charge of the Belgian Military Hospital at Hoogstade and part of the Military Hospital at Bourbourg. Dr. Willems, at the hospitals of which he had charge, revolutionized the methods of treating joint lesions and his success was so great that it appears likely that existing views as to the treatment of such injuries will undergo a great deal of revision. For a long time previous to the war the classical mode of treating joint lesions was by immobilization. The functional results, however, were so poor that even before the war some tentative efforts were made to devise a method whereby the functions of the joint might be preserved. Willems was the pioneer in this direction and his methods of treatment were directly opposed to those so long in vogue. His treatment is based on the principle of immediate active mobilization of the joint. The success of the method, for in Willems' hands it has been most successful, appears to be due to the complete drainage which limits the infection to the synovial membrane and prevents it from spreading to the cartilage and bone.

Furthermore, Mr. J. W. Dowden, Surgeon to the Royal Infirmary, Edinburgh, and who had first experience in a Territorial General Hospital and for three years in the Edinburgh War Hospital, Bangour, is averse to immobilization of fractures by splints, that is except when they are absolutely necessary. In a notable paper contributed to the *International Journal of Surgery*, April, 1919, he points out that in septic fractures, and practically all war wounds were septic, mobilization and no splints were followed by surprisingly good results. Dowden goes so far as to state that the greatest lesson learned from the war is to avoid immobilization in treating fractures.

The chapter of the *Bulletin* dealing with plastic surgery is of great interest. Attention is drawn to the fact that we are apt to regard this line of work as a matter of re-

cent development and to overlook the fact that there is no other branch of surgery in which such pronounced advance has been made during the twenty-five years preceding the war.

The care of the wounded from firing line to convalescent camp is described by Lieut.-Commander Bainbridge at length. Thru the courtesy of Director-General Goodwin of the British Army, he was enabled to follow every step in the handling of wounded men from the moment of receiving first aid until they were either restored to military duty or discharged as unfit for further service. As a consequence

Hospital for officers at Highgate. Mr. Herbert J. Paterson, the honorary surgeon in charge, and a gentleman who is well known in this country, states very positively that he has come to the conclusion that treatment in pure, fresh air amid quiet surroundings means a shortening of the stay in hospital by nearly one-third. The convalescent camps in England are given an extended notice and the physical reeducation of the disabled is discussed exhaustively, but most interestingly.

The *Bulletin* is indeed a mine of valuable information for the general practitioner, the surgical developments of the war re-



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A Delegation made up of the World's Most Famous Physicians and Surgeons who served with Allied Forces photographed in front of City Hall, New York, before being taken around city in automobiles.—These doctors are here in United States for history making conference which may result in radical changes of army medical practice.

the author is able to give a graphic account of the various details with regard to the transportation and care of the wounded, which is an unusually complete and satisfactory exposition of the subject.

Hospitals in France, Belgium and England are described. Particular reference is made to the small hospitals in England, which many maintain are better adapted for successful treatment than the large institutions, especially those in metropolitan districts. A very successful hospital of this smaller type is Queen Alexandra's

ceiving principal attention as might be expected, and the medical aspects thereof being dealt with only cursorily. Commander Bainbridge very obviously enjoyed unusual facilities for coming into close and intimate contact with the conditions in the different countries at war which he visited, and it is equally obvious that he availed himself of his opportunities to the utmost. The *Bulletin* thruout is splendidly illustrated with pictures which add much to the practical as well as historic value of the report.

The American medical profession is

greatly indebted to Commander Bainbridge for the capable and tireless efforts that have made this report possible. It is one of the notable contributions to the medical and surgical achievements of the war.



Medical and Surgical Work as a Prisoner of War.—Captain Alexander T. I. Macdonald (*British Med. Jour.*, Mar. 29, 1919) describes some of the ways in which the vaunted "efficiency" of the Germans differed from the British methods. Taken prisoner at a French dressing station in March, 1918, Captain Macdonald and a colleague were held prisoners all day treating British and German wounded alike. There seemed to be no medical officer with the German battalion, but only men belonging to the medical corps, or *Sanitäts* personnel. These men carried a small bag of dressings containing, among other things, a hypodermic syringe and solution of morphine, the former fitted into a bottle containing absolute alcohol to sterilize the needle. The injection of antitetanic serum, tho regarded with suspicion at first, was for the most part submitted to by the Germans. Stretcher-bearing as carried out by the Germans was rather a crude operation, and in the case of a patient with a fracture must have led to extreme suffering. A ground sheet, slung on a pole borne on the shoulders of two bearers, contained the unfortunate patient. Duckboards and other substitutes were also used. The stretchers used by the Germans further back were heavier than the British ones and possessed the advantages of a head support, hinges for folding and sliding handles. The enemy medical officers remained relatively far back at the *Verbandplatz*, or dressing station. Here the author was struck by the meager supply of surgical material. Splints consisted of pliable wire—two thick pieces joined ladder fashion by thinner pieces, which were much too pliable for the thigh and leg, tho often employed for this purpose. Volkmann's iron gutter was available for fractures of the thigh, but did not secure extension or immobility in transport as does Thomas' splint. Marching further back from the dressing station, the author passed a long line of enemy transport ready to move; this consisted of a wonderful conglomeration of vehicles, including a brougham and pair, open landaus, Russian droshkies, etc. The ambulance transport consisted of small wagons capable of taking two stretcher cases, drawn by Russian or Rumanian ponies and flying a small Red Cross flag. The deficiency of motor ambulances was

made up to some extent by attaching to each a string of two-wheeled trailers. Captain Macdonald and his colleague were then sent to one of the Bavarian *Kriegslazarets* overflowing with British wounded who had received no further dressing than the first and were in urgent need of attention. They lay on beds, on stretchers, and on paillasses on all available floor space, including that of the basement cellars. The operating and dressing room was dirty and sparsely furnished. A small coal stove served for the supply of hot water and the sterilization of instruments. A wash-hand basin was fitted with a supply of cold water only and was without waste pipe. Instruments were few in number and partly denuded of plating; this, however, was remedied later and a gas stove and electric light provided. The most rigid economy was entailed in the use of surgical materials. Soap powder with sand; powdered washing soda, cakes of clayed earth and fine gritty material admixed with soap were obtainable at times; at other times there was no soap of any kind and one had to trust to prolonged immersion in sublimate solution to afford a degree of surgical cleanliness. In doing dressings, therefore, extensive use was made of forceps and the wounds were not touched with the fingers. Rubber drainage tubes were scanty and were not supposed to be cut, if not of suitable length. Bandages were mostly of paper. For securing splints, roller bandages made from lace curtains or cotton dress materials were used sparingly and were collected from time to time, washed, and rolled again for use. A substitute for cotton wool was provided in the shape of *Selk-stoff*, made from paper. A substitute for benzol was used to prepare the skin, with tincture of iodine for use as a final application. Open wounds were cleansed by irrigation with diluted hydrogen peroxide. Moist dressings of dilute solution of aluminum acetate on lint covered with jaconet were used for cellulitis. There was no shortage of anesthetics. In fractures of the femur, extension from a clamp applied to the skin over the lower end of the bone just above the condyles on either side was much employed by the Germans; this resulted in the skin over the points of pressure becoming septic and sloughing, with great deformity and shortening. The author points out that among the medical cases a variety of nephritis and a condition (the result of slow starvation) characterized by weakness, shortness of breath, emaciation, edema of feet and legs and anemia was frequently met, as was influenza, often followed by pneumonia. Diarrhea and dysentery were rife; impetigo, furunculosis and scabies were common. Pneumonia was rapidly fatal in the poor starved men who often remained at the camps for days without treatment before admission to the hospital. Conditions were particularly bad among the newly captured men, who were not only starved but also dirty and ill-clad, having disposed of part of their clothing for food. These men received no Red Cross parcels, and their condition was very different from those in the next camp who received food, soap and warm clothing from home. Drugs,

chiefly in tablet form, were of good quality. The hospital dietary was divided under three main heads: the ordinary diet consisting of half a bowl of soup, replaced by boiled rice with a spoonful of dried fruit on Fridays, black bread, jam, so-called tea or coffee, with occasionally a small piece of sausage for supper, or bread and meal gruel. The black bread was sour and indigestible and contained sawdust, as the loaves were rolled in sawdust. Form 2 was similar to the ordinary diet, but three thin slices of white war bread spread with margarine were given instead of the black bread, and the soup was rather more digestible. A small amount of milk, an egg, which was usually bad, or a glass of wine could be ordered as hospital extras. Form 3 was supposed to be suitable for diarrhea cases and consisted of thin gruel, purée of potatoes, etc. As the quantity of white bread given was insufficient, patients as a rule ask to go back to the ordinary diet. The beds in the wards were of wood and were roughly constructed. Mattresses were made of paper sack-cloth filled with wood shavings over which a sheet was placed. In helpless patients bed sores were inevitable. No rubber cushions or water beds could be obtained and a shift was made with rings of straw covered by bandage. Clean bed linen was rare and there were no means of disinfecting clothing. Baths were given to walking cases and personnel at a large factory in the town, which had been fitted with bathing and disinfecting station. The conservancy system in the hospital was extremely crude; the latrines were a source of nuisance and in the summer flies were very troublesome. At Conde, where the author spent several days at a prison on the French frontier, a French lady succeeded in smuggling to them bread, lard, soup, and ragout from time to time. From there Captain Macdonald was sent from place to place, the last stage of his journey coinciding with the outbreak of the revolution. On Christmas day he left Germany with, as he says, a higher opinion of British organization than ever before.

than others to painful sensations; the chief of these are the median and sciatic, more rarely the ulnar and the crural. Occasionally nerve pains following wounds persist and, instead of improving, grow gradually worse until they become unbearable; and soldiers have even been driven to thoughts of suicide by this suffering.

Thus history repeats itself! In our Civil War, Weir Mitchell, W. W. Keen, and George R. Morehouse called attention to the agony endured by some wounded soldiers, whose sufferings resisted every therapeutic aid. To this condition they applied the term "causalgia." Last year J. S. B. Stopford, of England, suggested the additional term, "therminalgia."

In a recent article Major Sicard, of the French army, has described some of his experiences with painful neuritis following wounds. Major Sicard and his associates literally tried everything: hot air, steam baths, radiant light, constriction, electricity, injections of gas and serum subcutaneously, and of air or cocainized serum in the nerve sheath, even dividing and reuniting the nerve. The whole gamut of internal therapy was run from coal tar products to morphine, with only temporary results.

Finally Doctor Sicard had recourse to the injection of alcohol intraneurally, which gave good results in the twenty-one cases where it was tried. This was done usually under a general, but occasionally under a local anesthetic. The nerve is freed from adjacent tissue and from one to two c. c. of alcohol of from sixty to eighty degrees is injected. The results obtained were very encouraging. Nine ceased to suffer immediately after injection, and in forty-three cases treated by Sicard and his colleagues there was only one case of nonsuccess. He concludes that in all refractory cases of painful affections alcoholization of the nerve trunk above the wound should be tried, after the ordinary therapeutic methods have failed, for we will undoubtedly have a number of these cases before long.

War Neuritis and Shell Shock.—Much magazine literature in the past three years has made us fairly familiar, theoretically at least, says an editorial writer in the *New York Med. Jour.* (June 14, 1919) with the condition variously known as shell shock, war neurosis, war shock, etc., but we have not heard much about war neuritis, altho the published observations of Tinel, Athanassio-Benisty, Babinski, Weil, Marie, and others, offer a wealth of neurologic material. Of these writers Madame Benisty and M. Marie have emphasized especially the extremely painful affections following injuries to large nerve trunks. It is a bit difficult to explain why some wounds are very painful, while others, apparently accompanied by exactly the same amount of nerve injury, are practically painless. About the nearest approach to a formula of any kind is the discovery that certain nerve trunks react more readily

Epidemic Malaria as a Military Problem.—Haughwout (*Philippine Journal of Science*, Nov., 1918) maintains that the recruiting of men to form army units from areas where malaria is endemic or epidemic is certain to bring together many who, while apparently well, are carriers of the malarial parasite. Such carriers, in the presence of anopheline mosquitoes, are a source of peril both to any community that is comparatively free from malaria and to their own comrades. When undergoing the fatigue and exposure of military training, they are extremely likely to develop the disease in its active form. Especially is there danger to neighboring troops if attendant conditions are such as to render antimosquito measures impracticable and quinine prophylaxis applicable only with difficulty. To obviate this, carriers among recruits should be

carefully sought out. No reliance should be placed on the simple examination of blood films, but use made of concentration or cultural methods, supplemented in the negative cases by provocative measures such as the administration of adrenin, ergot, pituitary extract, strychnine, quinine, or horse serum, or irradiation of the spleen with the quartz lamp. These provocative measures tend to awaken the latent infections and bring the parasites into the peripheral circulation, where they can be destroyed by the usual specific treatment. If quinine fails to act and is not being sufficiently absorbed, adjuvants or some other form of treatment should be used. If all measures prove fruitless, the recruit should be honorably discharged from the service. From the surgical standpoint, the tendency of latent malaria to become active under the influence of wounds, operations and anesthesia should be borne in mind.

Disease and Wounds in the War.—Science made the World War deadlier than any previous war, but medical skill restored the balance (*Modern Medicine*, May, 1919). The instruments of war were more destructive than ever, but medical science was more reconstructive than ever. More men were killed outright, but fewer died from infections and neglected wounds, and fewer from the ravages of disease in proportion to numbers. Foresight and sanitation prevented contagion.

The compiled figures on pensions by the English Ministry of Pensions throw much light on the relative distribution of disease and wounds in the great war. While this war has been a triumph for the physician in the conquest of disease in the army, yet a majority of the pensions granted down to September 1, 1918, were granted on account of disease.

Out of a total of 421,877 pensions granted, tuberculosis and chest complaints were responsible for 47,078 or 11.2 per cent.; rheumatism for 27,424, or 6.5 per cent.; heart disease 41,699 or 9.9 per cent.; nervous diseases 25,165 or 6 per cent.; epilepsy 4,257 or 1 per cent.; miscellaneous diseases, including Bright's disease, debility, ulcer of the stomach, varicocele, enteric and malariac, spinal, appendiceal, amounted to 81,381 or 19.3 per cent.

Altogether the number of persons pensioned on account of wounds was 42 per cent. of the total as against 58 per cent. on account of disease.

The data of American experience are still meager, but reports from the Federal Board for Vocational Education indicate that of the 7,710 cases dealt with up to Jan. 31, 1919, by far the larger portion was due to disease. Tuberculosis was responsible for 2,791 cases or 36.2 per cent.; heart disease for 843 cases or 10.9 per cent.; nervous diseases and shell shock 294 cases or 3.9 per cent.; insanity 318 cases or 4 per cent.; other diseases 2,291 or 29.7 per cent. The total number of cases on account of wounds was 915 or 12 per cent.

The short duration of American participation

in the actual fighting, and the large number of men in camps make it probable that disease will, by far, exceed wounds as causes of disability.

The contrast with previous wars is striking. Our Civil War produced 309,790 casualties from wounds and disease, of which 110,070 were on account of wounds and 199,720 on account of disease. Epidemics persisted and caused a heavy drain upon the man-power of both armies.

Figures are not available to show the disabilities other than death respectively by disease and battle wounds, but all the evidence indicates that disease was the most powerful factor in creating disabilities. This was decidedly true of the Spanish-American War, in which large numbers were permanently broken in health. Diseases which wrecked the lives of thousands in 1898 were entirely conquered in the armies of the fighting nations in the World War.

We trust that the achievements of medicine in the war will be completely and popularly set forth in the near future for the stimulus it will give to preventive medicine.

America's Defective Manhood.—Following is the record of the U. S. Surgeon-General on rejections for the physical unfitness in the first call of men for military service:

Venereal diseases	938,232
Heart disease	564,768
Diseases of the ear, including defects of hearing	525,600
Diseases of the eye, including defects of vision	421,704
Flat feet	346,392
Alcoholism	296,640
Disease of the organs of locomotion	277,128
Hernia	209,304
Disease of the skin	174,672
Under weight	173,160
Diseases of the respiratory system	156,600
Defective teeth	149,112
Weakness of mind	146,088
Defects of development	132,552
Diseases of the genito-urinary system, non-venereal	124,992
Varicose veins	90,360
Diseases of the nervous system, except as shown in detail	88,848
General diseases, except as shown in detail	82,800
Tuberculosis	76,824
Varicocele	48,168
Insufficient chest development	45,144
Diseases of the digestive system, except as shown in detail	43,704
Physical debility	38,880
Curvature of the spine	36,144
Over weight and obesity	31,608
Hemorrhoids	22,608
Under height	21,096
Diseases of the circulatory system, except as shown in detail	7,560
Injuries	207,792
Rejected for causes not physical	1,721,304

American Medicine

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The Prize Fight.—The big fight is over. Midst the mingled plaudits and unvoiced groans of thousands, the seconds for the massive Willard cast their towels into the ring and a new champion was hailed with honor. It is not the spectacle recalling the days of ancient Rome, when gladiators annihilated one another to make an imperial holiday, that merits description. There is no need for inquiring into the causes leading to the rapid rise of the new conqueror, or into the elements contributing to the defeat of the powerful but unpopular de-throned Hercules. There is no reason to attack or defend public exhibitions of fisticuffs, nor to question the moral values of such exhibitions. It is useless to waste words over the costliness of such a combat at a time when thriftiness is urged upon the masses. Nor is there anything to be gained by pointing out the vast sums of money which changed hands in the betting ring. The amount of money involved as prize for victor and vanquished, and the short time involved in acquiring it, should be, but is not, a matter of great concern. It suffices to say that this prize fight had a powerful hold upon the interest and imagination of the general public.

The real striking phenomenon, outside of the fistic struggle, lies in the amount of newspaper space devoted to the topic for weeks in advance, and for several days fol-

lowing the event. The most capable correspondents of the press, selected because of their ability to grasp a news story, and to embellish it in choice, attractive or bizarre language, were sent to Toledo from all sections of the country to herald the doings of the combatants and their followers for the daily delectation of innumerable readers. More newspaper space was devoted to the heavyweight championship contest than was given to many striking events during the recent war. The epidemic of influenza failed to achieve popularity in publicity equal to the comings and goings of the exponents of the manly art. The annual meeting of the American Medical Association received few inches of space for each page devoted to the fight and its various phases of development. Public interest, however slightly existent at the time the great fight was promoted, was incited and stimulated daily until the event appeared to assume the proportions of the most noteworthy event of the day. Sports held the center of the press stage, and items of more permanent value were relegated to subordinate positions.

The power of the press might equally well be employed for the creation of a vigorous public health opinion or for the development of wider knowledge pertaining to public health. Can one imagine what the result would be if the united press

were to send a hundred chosen correspondents to an annual meeting of the American Medical Association, or of the American Public Health Association, or of some similar national health promoting agency, with instructions to gather up columns of news items affecting the nation? Can one conjure up the benefits to be derived from persistent reporting of interviews with prominent leaders in health and sanitation upon timely topics under discussion, or the benefits that would be consequent upon cumulative series of articles dealing with personalities, researches and discoveries, methods of public health education, and advances along medical and social lines, as reflected in the activities of such an annual event? It may be said that the public is not interested, but this is exceedingly doubtful. Were one to grant a lack of marked interest, it would be to deny the power of the press to state that a campaign of special correspondents' publicity would fail to create an active interest. Despite the large numbers of the population eagerly seeking news concerning championship boxing contests; there is an overwhelmingly larger part of humanity that craves for wider knowledge and information concerning the art of healthful living.

A tremendous advantage would inure, were editors to recognize the greater benefits which they can confer thru the use of special writers in connection with constructive events in medico-social affairs. There are countless opportunities for sob stories, frank news items, didactic narrative, poetry, political, social and economic notes, biography, anecdote, humor, connected with a large variety of public meetings which are comparatively neglected or ignored save for a brief Associated Press notice.

It would be a wholesome experiment for

the press of a single city or state to demonstrate the truth or falsity of this opinion. It is difficult to believe that any paper attempting to offer this type of public service would fail to achieve success. The public health movement of today, for its greatest effectiveness, includes public health education. The part that the press is to play in this direction has scarcely been considered or organized. The most valuable results will follow not the occasional or daily medical notes of a column writer, but thru the organization of featured means of campaigning in behalf of a victory over disease, as was done in connection with the determination of a victory in the square ring.

Restricted Immigration.—In a discussion of The Fourth Great Plague—Defectives (*Modern Medicine*, June, 1919), M. D. Clark refers to the problem of industrial accidents, without, however, making any direct relation between the statistics of industrial accidents and the number of defectives actually employed. The burden of the argument thruout the discussion is that there has been an indiscriminate admission of excludable aliens, who may serve in part as progenitors of a line of insane, feeble-minded, and criminal offspring. This was partly based upon the fact that about one-third of the dependent and defective classes cared for in New York State, according to a report of 1912, were aliens. It is true that since 1914 deportations have been suspended, and as a result, nearly 4,000 excludable aliens have remained in this country, of whom 1,723 were insane. This fact, however, does not reveal any direct relation to the incidence of industrial accidents.

In the factories of New York State approximately four-fifths of the workers are foreign born. The total number of accidents each year, since 1915, when the Workmen's Compensation Law became effective has averaged over 274,000. At the present time, reports of accidents are received at the rate of 1,000 a day "representing a cost of \$13,000,000 a year as an initial expenditure, to which must be added the cost of medical benefits, administration of the Compensation Law, wages, and cost of turnover, all of which has increased the total direct and indirect cost of accidents in the State of New York \$35,000,000 yearly, or a rate of about \$117,000 per day for each working day in the year." If one grants that 70 per cent. of the applicants for compensation benefits require the services of an interpreter, there is still no evidence to indicate that they are mental defectives.

While accident casualties undoubtedly diminish the working potentials of the country, they do not of themselves have a dysgenic effect upon the next generation, insofar as heredity is concerned. Patently, the problem is more significant in relation to immigration than to the general subject of mental defectives.

Immigration is a matter of serious concern today, not merely from the standpoint of industrialism, but from the point of view of public health. The tide of immigration has apparently turned. Already a million and a half of workers have left these hospitable shores to return to their homelands with their worldly goods, for the purpose of participation in the rebuilding of devastated areas and for caring for their families which may be scattered or sorely in need of increased protection and aid. It has been estimated that fully five million aliens have declared their intentions of returning.

These comprise the vigorous and active immigrants of a few years ago, whose participation in the labors of this country was most necessary and productive. This loss of manpower is not readily compensated for by native born workers, who are not keenly anxious to participate in those pursuits denominated as "common labor."

The type of immigrants now coming to this country has altered considerably. During 1915, 326,700 immigrants entered the country, of which Italians supplied approximately 15 per cent.; English, 8½ per cent.; Germans, 6 per cent.; Greek, 5 per cent.; Hebrew, 8 per cent.; Japanese, 2½ per cent.; Mexican, 3 per cent.; Scandinavian, 13 per cent.; Slovak, 9 per cent.; Irish, 14 per cent.; French, 3½ per cent. By way of contrast, during the month of March, 1919, our immigration consisted of English, 18 per cent.; French, 8 per cent.; Irish, 5 per cent.; Japanese, 7 per cent.; Mexican, 28 per cent.; Scandinavian, 5½ per cent.; Scotch, 7 per cent.; Italian, 2 per cent. These changes are of considerable significance, particularly in view of the fact that our figures for immigration are still exceedingly low.

While the first quarter of 1919 shows a small increase over the similar period for 1918, it represents, for example, only about one-sixth the immigration for the first three months in 1913 or 1914. During the four years of the war, beginning with January, 1915, the total number of immigrants admitted into the United States thru December, 1918, amounted to 1,031,546, whereas in 1913, the admissions amounted to over 1,380,000, and in 1914, because of the effect of the beginnings of the war, to 750,000. This, therefore, marks a tremendous falling off in immigration which is now

to be accentuated by an unprecedented emigration.

The demand for workers from abroad is not great at the present time, as the surplus of labor has not been absorbed by industry after conversion from a war to a peace basis. It will not be long, however, before the question of replenishing the labor ranks will be of serious moment, and then the problem of determining upon the stock to be admitted will have an increased significance. It is patent that future immigrants must be physically and mentally sound. They must be educable and adaptable. Mental defectives and physical incapables must be barred not merely for economic reasons, but for the sake of promoting the racial advancement of the peoples now constituting the united nation. The health and efficiency of the United States must be safeguarded thru the rejection of blood in any way contaminated, devitalized, or dysgenic. The serious consequences of war upon the health of foreign lands increase the necessity for rigid immigration laws, wherein national sympathies shall not be permitted to override sane judgments concerning public health.

An immigrant may be an asset or a liability. The one is a desirable; the other is an undesirable. The exclusion of undesirable aliens is of greater consequence than making provision for deportation under various conditions. Deportability provisions must necessarily exist, but the efficiency of the system of admissions is tested by the infrequency of need for acting upon laws promoting deportation. Exclusion of undesirable aliens is more productive of public health benefits than wide-open laws, with compensatory provision for deportation. The mental defectives, insane, criminal and seriously diseased must not be admitted re-

gardless of their social or economic position or the hazards of more or less immediate dependency.

Infant Mortality.—Despite all the care it was possible to give during the war, and made necessary by it, the deaths in the United States during 1918 increased by at least half a million over the number during 1917. During 1917, the number of births exceeded by 60 per cent. the total number of deaths, whereas during 1918, the excess of births had fallen to about 24 per cent. over the deaths, based upon the reports of 162 out of 253 cities in the United States of over 25,000 population.

According to the New York Milk Committee, the general infant mortality rate, based on reports received from cities comprising 26 per cent. of the population, increased from 97.5 per thousand births to 104.1. The significance of these figures, despite the fact that the Children's Year had created many agencies for child welfare, depends upon an appreciation of the ravages of the influenza. The smaller cities revealed the lowest infant mortality rates, but the larger cities have a rate lower than that found in cities with a population of 50,000 to 100,000. The causes of this variation are variable, but undoubtedly involve the greater attention paid to public health administration in large cities and the higher degree of thought given to industrial hygiene.

That the rate of 104.1 is still very much higher than warranted by our present state of knowledge of infant hygiene is apparent from the fact that Brookline, Mass., Madison, Wis. and Pasadena, Cal. were able to report infant death rates below 50. San Francisco lowered its infant morality rate

from 73.6 in 1917 to 57.2 in 1918. These represent standards and tendencies which denote the possibilities of organization for the care and protection of childhood. It is interesting to note that while the total deaths at all ages in 1918 were more than 31 per cent. higher than in 1917, and the living births were only 1.6 per cent. higher, the infant mortality rate was only 6.7 per cent. higher, while the percentage of deaths under one year to the total deaths decreased by 17.4 per cent. This, of course, is due to the tremendously high mortality rate incident to influenza among the active adults between the ages of 25 and 45. Another statistical evidence of the sad destructivity of the recent epidemic is found in the increase in the percentage of still-births by 10.8 per cent. over 1917, while the still-birth rate reflected an increase of 8.8 per cent.

Infant Mortality and Birth Rate.—

It is well known that a high rate of infant mortality does not necessarily accompany a high birth-rate. Ignorance, poverty, industrial pressure, unsatisfactory food supplies and inadequate housing play their parts in determining infant mortality, irrespective of general figures as reflected in birth rates. A single epidemic will vitiate all figures interpreted in the light of economic factors, when no relation is discernible between the epidemic mortality and the economic status of sections of the community, or when the mortality arising from the epidemic factor appears to have no regular plan of distribution in the earlier age periods as contrasted with later periods of life.

While at first blush the increased mortality rate of 1918 might appear to be a reason for discouragement and dissatisfaction with

modern methods of hygiene and sanitation, when the complete figures are available and an analysis of various facts shall have been made in comparison with similar items in 1917, it will be evident that as a whole, the infant mortality rate may be regarded as remarkably low, considering all the elements militating against infant welfare during a period of war, food shortage, high cost of living and pestilence. Undoubtedly, the campaign of the Federal Government in behalf of infancy has played a large part in keeping down the infant death rate which, had there been no epidemic, would have fallen below any figures previously known in this country.

The general interest in the welfare of infancy and childhood, transmuted into active and effective organization, is accomplishing results that challenge one's admiration. The perils of the second summer no longer exist. The frightful fears of cholera infantum, summer diarrhea, the dangers of cutting teeth in the summer time and the various other bugaboos of the previous two decades have practically vanished. Prenatal care, supervised midwifery, infant welfare stations, district nursing and improved milk standards represent a few of the most effective means of reducing infant mortality. The development of medico-social efforts in this direction has achieved rich rewards, and their further growth will necessarily cause still greater reductions in the mortality rate of infants. Preparation and organization based upon an understanding of the fundamental problems involved can be productive of naught but success.

Public health administrators are no longer dealing with theories or experiments in this direction. The facts are obvious. The methods are almost standardized. Failure to make use of the modern methods of

lowering the infant mortality rate constitutes an indictment of a community.

July and August.—The months of July and August stand forth prominently in medical statistics as pointing out diseases requiring particular attention. By way of example, one need but note the tendency for typhoid fever and malaria to increase markedly, despite the fact that methods for their control are thoroly understood.

The vacation tendency is responsible for many deaths, particularly those of a violent nature. During 1916, approximately 20 per cent. of the deaths from violent causes occurred during these two months. The increased use of automobiles, the extension of transportation, the growing speed along the highways suffice to account for the fact that the mortality from violent causes in 1916 was fully 3,000 more than during the year 1911. The Safety First Movement has much to accomplish in this direction, altho the marked decrease due to the institution of a safe and sane Fourth of July has had some effect upon the relative mortality, even if it has not greatly affected the total results.

A considerable improvement has been noted in deaths from congenital debility, excluding premature births, which, as a rule, begin to increase during the month of July. A noteworthy decrease in deaths from this cause to the extent of 1,200 lives was evidenced in 1916, over 1911.

It is striking to note that the gross mortality from diarrhea and enteritis under two years decreased very slightly during the five year interval from 1911 to 1916, tho the total figures referred to must be recognized as representing results from a larger registration area during 1916 than during 1911.

Despite this fact, however, there was a total decrease of approximately 2,000 recorded deaths from the cause under discussion. That this effect is real rather than apparent is shown by a gross increase of 300 deaths from diarrhea and enteritis, two years and over in the same five year period.

Fortunately, the summer is not the time for epidemics of contagious diseases, and measles, scarlet fever, whooping cough, diphtheria, influenza and even tuberculosis show considerably lowered mortalities beginning with July. Bronchitis, bronchial pneumonia and pneumonia similarly are relatively inactive during the hottest months of the year.

The main factors apparently involved in the mortality of July and August include flies and mosquitoes, a lack of sanitation of food and water supplies, the depressing effects of high heat and humidity, and a lack of precaution against the hazards involved in transportation of various kinds, plus the dangers inherent in the games and sports of the summer time.

Automobile Accidents.—There is every reason to believe that automobile regulation calls for stringent action. In 1906, automobile accidents were responsible for a mortality rate of 0.4 per hundred thousand population as compared with 7.3 in 1916. The most distressing feature lies in the fact that 27.9 per cent. of the total number of deaths from automobile accidents were of children under 15 years of age. In cities the death rate from automobile accidents and injuries is comparatively higher than that due to railroad accidents and injuries. This indicates the special need for the control of automobile traffic under urban conditions.

Whether the habits of vacation by city

dwellers in rural communities are responsible or not, there is a compelling interest in the fact that typhoid fever and malaria begin to flourish far more in the rural parts of registration states than in the cities. The necessity for the control of insect pests and the importance of improving the sanitary conditions in rural sections are thoroly understood, and only recently have received a new impetus, so that figures of this character should begin to alter during the next few years. The nearness of rural dwellers to the source of food supplies and the decreased problem of refrigeration and sanitation are well exemplified in the tremendously low mortality rate from diarrhea and enteritis compared with that found in cities. That this state is not due to a greater climatic comfort in rural sections is suggested by the fact that deaths from congenital debility are higher in rural districts than in urban sections. This is in part, of course, due to the greater attention given to child welfare in cities and the better facilities for giving medical and nursing attention to those stricken by disease.

The control of a comparatively few elements during the months of July and August would result in a greatly decreased morbidity and mortality rate. The diminution of contagious diseases cannot be attributed to the effects of sanitation *in toto*, but probably results from the failure of the summer time to conduce to the optimum conditions for the development and dissemination of the causal agencies responsible for epidemic diseases, which are not completely eliminated, but in their endemicity appear to be greatly lowered in vitality and weakened in virulence. Those diseases, however, which do flourish at present during the summer months, are strictly within the category of preventable diseases, and, as

such, their continuance is not merely a menace to public welfare, but a challenge to the public health movement.

The conquest of preventable diseases is possible with the expenditure of proper degrees of effort, with requisite organization and reasonable appropriations of money. Time, men and money should be able to wipe out the needless mortality of summer, beginning with July and August.

Indemnity or Prevention.—The report of the Wisconsin Social Insurance Committee presents the conclusion "that the acceptance of compulsory health insurance is neither practical nor feasible at this time." The reason for the rejection lay in the belief that "there are no outstanding social or economic conditions in Wisconsin at this time which would make health insurance, as a compulsory measure administered by governmental authority, either necessary or expedient." Back of this statement is a further belief that a health insurance act cannot be enacted without an amendment to the State constitution, if it were deemed necessary to establish such mandatory legislation. The alternative of a voluntary system is rejected because of the serious and complicated administrative considerations which would be involved.

The committee, after varying discussion, sums its problem up in this query: "Is it more humanitarian to indemnify or to prevent?" There is no question as to the implied correct answer, if one must necessarily make a choice, but on the other hand, the two are not mutually exclusive. All efforts at prevention will not eliminate disease and accident, while indemnification will tend to increase general interest and efforts at pre-

vention, in order to reduce costly compensations.

Fully recognizing that sickness of the wage earner, with consequent loss of wages, is a serious problem, it is manifestly proper that there should be a thoro investigation as to the proper remedy to be applied. In Wisconsin the committee reports that "it is not satisfied that health insurance would be a proper remedy." In order to be constructive, while rejecting a specific health insurance bill, the committee advises greater efforts be made to extend and increase the efficiency of existent preventive agencies. It recommends more liberal appropriations by states and local communities in order to increase the machinery of hygienic agencies already in operation. Its suggestions include the appointment of county health officers, the development of state health laboratories, with the hope "that they may be made in the course of time, centers of preventive medicine, and become useful in the possible future developments of so-called group medicine." It urges the general employment of physical and medical examinations in public schools, with considerable emphasis upon the fundamental necessity of providing adequate methods of child and school hygiene.

It advocates the encouragement and establishment of district nursing centers for the purpose of giving more proficient nursing care, especially during prolonged illness. It points out the importance of seeking the reduction of infant mortality as part of the public health program, and advises the establishment of a bureau of child welfare in connection with the state health organization.

There is much merit in the suggestion for greater financial aid from the legislature for the support of hospitals and sani-

taria, and its suggestion that every county should have no less than one thoroly equipped modern hospital for general purposes must be accepted as a rational and far-seeing program. It is of the opinion that occupational diseases should be included in the workmen's compensation act, that comprehensive housing plans should be adopted to provide sanitary homes for the future growing industrial population, a subject of increasing importance to this country in the face of present shortcomings.

Some Favor Health Insurance.—A minority report was submitted advocating a compulsory health insurance law, after disagreeing with the majority as to the necessity for a constitutional amendment as necessary for its adoption.

Waiving aside the constitutional question, there is a marked difference of opinion as to the advantages of indemnification, as opposed to preventive measures. Herein lies the most mooted topic discussed in connection with health insurance. It requires no long argument to prove that illness will always exist. The greatest efforts of public health work will never result in producing earthly immortality. The best that can be hoped for is the prolongation of life, due to effective measures resulting in a certain indefinite postponability of disease, with a reduction of some epidemics and, possibly, the control or elimination of others.

The general decrease in morbidity is a marked advantage to the community, but whenever wage losses occur, the burdens must be borne by individuals, even tho society as a whole may be responsible for their development. It is merely an act of justice that the burdens of wage loss should be borne by the state instead of serving to

weaken the powers and vitality of personal units comparatively unable to stand the deprivations following in the wake of many accidents and diseases. The Wisconsin Committee chooses to advocate increased facilities for the prevention of disease and to regard it as tantamount to securing the complete reduction of preventable sickness and consequent wage losses. With their splendid premise, their conclusion is a *non sequitur*, as the necessity for indemnification cannot be removed, regardless of any appropriations that might be made. The extent to which wage losses will fall upon society will undoubtedly be decreased, but where existent, they will be none the less devitalizing and opposed to the best interests of public welfare.

Wages and Cost of Living.—Wages have increased, but so has the cost of living. The United States Bureau of Labor Statistics, in the early part of 1919, established its opinion that \$15.50 was the minimum amount required to meet the necessary cost of living to self-supporting women in the District of Columbia. Among the items comprised in this amount is an allotment of 50 cents a week for sickness, dentistry, and oculist; 20 cents for amusements; 25 cents for a vacation, and 35 cents for savings and insurance—and it must be remembered that this is a higher minimum than has been fixed anywhere in the United States. It is hard to understand how good citizenship is encouraged by this minimum wage, which certainly allows no opportunity for active contribution to governmental loans or even the purchase of thrift stamps. It is difficult to appreciate how such a woman would be able to give herself medical and nursing care in the event of an illness depriving her of her earnings, if any of the machinery of

prevention should fail to accomplish the remarkable things hoped for by the Wisconsin Social Insurance Committee. The scant allowance made for savings in insurance is obviously inadequate to enable her to purchase health or accident insurance so as to guarantee some financial return during the period of enforced inactivity. Even were she to apply the magnificent sum of twenty cents provided for incidentals to this use, she would still be unable to protect herself against the losses and hardships incident to any serious affliction. As a matter of fact, all her funds for insurance would scarcely suffice to provide for a decent funeral.

The possibility of accident or disease being existent, one may reasonably ask wherein prevention plans will remedy in any way the situations actually created by the incidence of illness. The prevention of disease and indemnification for disease, far from being mutually exclusive, are essentially complementary procedures, and the welfare of society will be best promoted by the adoption of both programs by public health authorities.

Mental Defectives.—The interest in mental defectives continues unabated. A recent report entitled "Mental Defect in a Rural County," by Treadway and Lundberg, is presented as a result of the collaboration of the United States Public Health Service and the Children's Bureau.

The investigation demonstrates the necessity for combined medical and psychologic examinations, supplemented by thorough social investigations, in order to determine the prevalence of mental defectives in communities. The extensiveness and seriousness of the problem are marked in rural communities and serve to emphasize the re-

sponsibility of society to provide adequate care for the mentally defective.

The conclusions stress the importance of a number of separate items which merit the thought and appreciation of physicians, psychologists, educators, philanthropists and civic authorities. The medico-psychologic examinations should always supplement studies of social and moral reactions in order to definitely determine the existence of mental defect. It is patent that reactions to environment may cause a mental habitus simulating in a measure that present among mental defectives. It is of extreme importance to differentiate between such attitudes or states of mind and those dependent upon inherent cerebral defects of congenital or acquired origin.

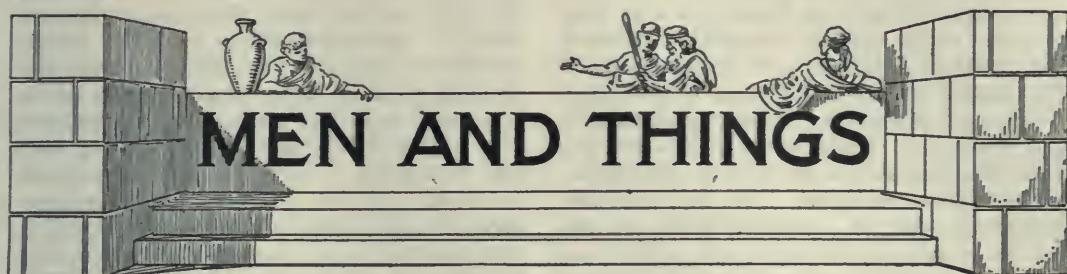
It is noteworthy that the percentage of feeble-mindedness among white males in both the school and general populations, from five to twenty years inclusive, was found in Sussex County, Delaware, to be greater than that among the white females. This fact corroborates previous observations reported by the United States Public Health Service in regard to school populations. Similarly, the percentage of mental defect among colored school children was greater than that observed among white school children. This item probably will require further investigation before it is beyond the pale of reasonable criticism.

The problem of caring for mentally defective persons is generally little understood and for that reason is usually neglected in rural counties, in states which make no provision for the care of such persons. Obviously almshouses are unsuitable for their care. The practice of placing out dependent children must be safeguarded lest mental defectives from one state find asylum in another state and thus add to the percentage requiring special attention.

Institutional care is essential for many mentally defective persons who should be segregated not merely because of benefits accruing to themselves thru supervision and training, but as a measure of protection of the community against their lack of self-control and their anti-social potentials. It is necessary that mental defectives be studied individually, and their home conditions should be carefully weighed in order to arrive at a sound conclusion as to the type of care needed. Dependent feeble-minded children should not be placed in family homes, unless both children and family can be properly protected by constant and careful supervision.

Public protection calls for a recognition of the relation between defective mentality and pauperism, degeneracy, crime, alcoholism, the dissemination of disease and other social evils. All too long, mental defectives have been regarded as problems merely requiring psychologists and educators. They have been recognized as affording problems in connection with school organization. Only recently, has there been sufficient attention devoted to the relation between public health and mental defectives. The subject should commend itself to health departments as a legitimate field of inquiry and control.

Surveys of the type under discussion possess a distinct value in stimulating thought and in focusing attention upon this problem. The willing cooperation of the United States Public Health Service indicates a recognition by the Federal Government of the importance of the subject. Its conclusions merit the flattery of imitative investigations, and the establishment of rational machinery to put into effect the indicated types of relief requisite for the protection of the public from the evils arising from neglected mental defectives.



The Death of Dr. Jacobi.—As we go to press we learn with heartfelt sorrow of the sudden death of that Grand Old Man of American medicine, Dr. Abraham Jacobi.



For a great many years Dr. Jacobi has been one of the country's foremost medical men. Respected, loved, and honored by all who knew him, probably no other physician has ever held a higher place in the affectionate regard of his colleagues than this German-born but true American physician.

The extent to which his judgment and opinion have been esteemed by all who knew him, has been shown by the fact that no public question of medical or sociologic importance has been considered well discussed or settled until Dr. Jacobi's viewpoint and advice have been obtained. "What does Dr. Jacobi think about it?" has been a general inquiry if his opinion has not been in immediate evidence. It has seemed to be the common belief that his statement on any given topic would be the sound, common sense conclusion of a man who knew what he was talking about, and whose judgment, therefore, it would be safe to follow. The enormous influence such a man can wield for good has been abundantly shown thruout the last twenty-five years of Dr. Jacobi's life. During all these years to the day of his death he has been a sane, conservative adviser, a man who has been able to see the right and help others to see it, also. His poise, his kind and sympathetic manner, and withal his sterling honesty have made men trust him as few men are trusted.

His loss is a very real one, and altho a man in his ninetieth year must be expected soon to pass on, the passing of Dr. Jacobi has filled us with the deepest sorrow and regret.

These words are penned hastily and by no means constitute the tribute we intend to pay to this great American physician. In our next issue, we shall have several splendid memorial articles.

Well Done and Farewell.—It is customary to record with words of welcome the birth of a new medical journal. Too frequently, their passing from a life of activity goes unnoticed. The June issue of *War Surgery and Medicine* was the final one. Having had its origin in the necessity of furnishing medical officers with literature in abstract relating to war surgery and medicine, its reason for existence no longer persists. As an ephemeral, emergent contribution to the literature of war, it depended upon a number of collective abstracts as a means of presenting a vast amount of important material for the benefit of medical officers at home and in the field, who had little opportunity for searching out the specific articles relating to their special type of medical or surgical work.

The eighteen issues which have appeared have been of distinct service, and those who have contributed in preparing the manuscript and supervising the publication deserve the approbation and congratulation of their colleagues whom they served. Those who possess a complete file of the *Review of War Surgery and Medicine* own a valuable compendium for future reference which does not appear to be covered by another single volume thus far available. The only unfortunate fact is that the editors de-

cided to give no index, thus making it somewhat difficult to locate various subjects to which reference might be made in the future. Inasmuch as the purpose of the journal was to cover a period of emergency with what may be regarded as subject matter of timely interest, tho possibly without great permanent utility, this omission may be forgiven. The fact remains, however, that the contents have all appeared in other publications where they appeared originally, with the exception, of course, of the special orders and memoranda originating from the office of the Chief Surgeon of the American Expeditionary Forces.

The editors having deemed their services ended, and the publication having ceased, there is naught to be said or done save to set up a monument attesting faithful service and meritorious achievement. It ceases to be published after its work is done, and dies a self-sacrificing death, at the height of its able career.

The Anti-Vivisection Fallacy.—Once more the anti-vivisection issue comes to the fore, this time by no less a personage than one of our law-makers, Senator Meyers of Montana. And once more one feels compelled to call attention to a fact which, obvious as it seems, has nevertheless escaped the notice of so keen an intelligence as that of the worthy Senator: that the chief weakness of the anti-vivisectionists is that the basis of their whole contention is their humaneness, because it is the type of humaneness which, oddly enough, has a very decided quality of mischief and cruelty in it. No doubt innumerable delicate souls were touched to the point of tears by the Senator's eloquent appeal to spare that noble household pet, the dog, from the savage brutality of science; but there must have been a handful of thoughtful persons who winced at the lack of insight, foresight and hindsight which the appeal betrayed. For, as in every case of such humane appeals in the past by the anti-vivisectionists, they have invariably lost sight of the fact that their kindness toward the animals they sought to protect involved a denial of kindness to the whole human family; that, tho they proved themselves humane in one re-

spect, they showed themselves cruel and thoughtless in a much more important respect. Despite the absurd insistence of the anti-vivisectionists, the scientists who use animals in their experiments do not do so because they satisfy an unreasoning impulse toward cruelty. They do so because they are moved by a very commendable desire to be of service to humanity. To deny them the privilege of using animals in their experiments would be to deny them the privilege of serving humans. When we recall how much suffering humanity has been saved as the result of experiments on animals, we cannot but feel that the cruelty of the anti-vivisectionists is of a much more positive type than that of the scientist, for it condemns humanity to a slow process of medical and surgical progress which involves much needless suffering. Would any anti-vivisectionist admit that he is more concerned about the suffering of the animal than that of the human? Hardly. Yet that is inevitably the conclusion one must draw from his contention.

In the case of Senator Meyers, his special appeal is in the interest of the dog. As usual, he fails to understand that there is no suffering involved at all, that no dog is submitted to the knife of the surgeon or scientist without the administration of an anesthetic which does away with all pain, or nearly all pain. But even if the dog did endure hardship and agony, what then? The Senator bases his whole plea on the strength of the dog's great service in the war. He forgets that on the battlefield that faithful animal was exposed to dangers infinitely more cruel and hazardous than those to which the scientist exposes him. He was used to carry messages thru barrages and gas attacks; he was employed to bring first aid to the wounded under the heaviest of shell fires; he was made to draw machine guns into positions swept by rifle and artillery. And, believing no less than the Senator in the faithfulness and devotion of that noble animal, we rather feel that he was not at all loath to do all this for the masters to whom he was so deeply attached. Dogs have been known to sacrifice themselves in more than one instance out of love for their masters. In view of his high esteem of that animal, of his conviction that he is man's most devoted friend, how can Senator Meyers escape the obvious conclu-

sion that the loyal creature who exposed himself to gas and shell and bullet in the service of man would be just as ready to expose himself to the knife and the experiments of science in order to bring healing and hope to mankind? If dogs were endowed with speech, one cannot doubt that they would approve more heartily of peace service than of war service. Not only does sacrifice in the interest of peaceful science bring larger and more thankful rewards, but it involves a great deal less danger and suffering to the animal himself. Senator Meyers' choice of the dog as the special object of his charity, his choice of the dog's war service as his best argument, are particularly unhappy ones. One is rather inclined to think that the dog is a much more willing victim than the guinea-pig or the rabbit, his nature is more self-sacrificing. And, if the truth were known, it is as likely as not that the dog would object very strenuously to the Senator's effort to limit his power to serve, or his privilege of suffering to relieve the ills of mankind.

New York as a Medical Capital.—It would be regrettable to think that the physicians of this country have waited until Berlin and Vienna have been rendered impotent by the havoc of war to wrest the medical leadership from them and to make New York the Mecca of students of medicine. The fact is, however, that tho this plan is only now being organized and pushed forward vigorously, it was conceived before the war and was unavoidably held in abeyance because of uncertain conditions. The project does not involve an attempt, therefore, to reap any benefit from the unhappy plight of the former medical capitals; it is merely the result of a pre-war realization that the vast population and the facilities of New York City have always held out an opportunity which the authorities have not shown themselves quick to seize—an opportunity which was in reality an obligation. Sensitive as we are, it is amazing that we were not offended by the annual spectacle of students and professionals wandering out of the country and seeking the benefits that Berlin and Vienna held out to them in the way of study and specialization—benefits which New York

could not offer them merely because its resources, rich as they are, had not been employed. And yet all that goes into the making of a medical capital New York has possessed in a degree that even Berlin and Vienna cannot boast. It has, in the opinion of Health Commissioner Copeland, an abundance of clinical and laboratory material unrivaled by any city in the world. The Health Department of New York City has the greatest vaccine laboratory in the country. There are 30,000 hospital beds in the city, and there are more beds on Blackwell's Island alone than there are in all Vienna. This matter of the number of hospital beds is an important one, in that it promises unlimited opportunities to both students and specialists as a fertile field for their studies. And yet earnest students have gone abroad in thousands annually to cities where the opportunities are not nearly as attractive. The fault, however, has not been with the students; it has been with the authorities who have not possessed the vision to mobilize these resources and utilize them for the benefit of medical progress. Dr. Wendell C. Philips, general surgeon at Bellevue, supported by a group of notable physicians, has revived this commendable plan, and an effort is being made to raise a fund of \$50,000,000 to further it. There should be little difficulty in carrying the plan to success. In addition to possessing the physical resources, we are well supplied in this country with the material for leadership, with specialists who could give students all the advantages of training which they could obtain abroad, and with clinical material which few European cities can offer. With all these advantages, it is not to be doubted that even before the war New York City could have supplanted, certainly could have rivaled, Berlin or Vienna; and, if the money is forthcoming and both public and profession are awake to the opportunity, it would be a comparatively easy achievement in view of the present situation of those cities. It is not at all unlikely that European students, looking about for the most comprehensive field for study, will come to New York in future, aware of its more extensive resources. Certain it is, in any case, that the public in this country will benefit very largely from the achievement of such a plan; for many students who cannot afford the expensive luxury of study

abroad will be able to make their more advanced studies in this country, thus putting the opportunity of specialization within reach of nearly all and raising the medical standard thruout the country as a consequence. In its own interest, if for no other reason, the public should show itself most friendly to the plan.

The Doctors' Dilemma.—While Eastern doctors are dawdling their time away with such trifling and inconsequential enterprises as making New York City the medical capital of the Western Hemisphere and trying to raise a fund of \$50,000,000 for the undertaking, two Minnesota physicians, ready to lay down their lives with a gallantry that must touch the hearts of every romantic nature, are prepared to come to a death-grip to prove whether germs cause death or do not. Dr. H. A. Zettel, a St. Paul electropath, does not believe that germs cause death. Dr. H. W. Hill, executive officer of the Minnesota Public Health Association, presumably does, tho the telegraphic reports are not specific on this head. It would appear that the dispute between the gentlemen came to a stage where the only honorable settlement possible was a duel to the death, and a challenge was promptly forthcoming. It is encouraging to think that the romantic and noble institution of the duel still survives among us, despite the havoc that progress has wrought, and it is to be hoped that the fastidious formalities which graced that institution were minutely observed. Dr. Zettel having issued the challenge, it remained with Dr. Hill to choose his weapons; and, tho he was obliged to resort to an old practice to satisfy his honor, he was modern and progressive enough to select a weapon more in keeping with the times than swords or pistols, implements discredited in a democratic age because of their association with discredited militarism. He chose germs, certainly an original and worthy choice, and in the near future, unless craven spirits intervene to stop it, the duel will take place.

Unfortunately, however, the choice of germs as a duelling weapon, tho made in good faith and with the most gallant intentions, involves difficulties which the

gentleman perhaps did not foresee, or, foreseeing paid no heed to. Germs, regrettably enough, are less tractable as weapons than swords or pistols. In dealing with these latter, one deals with inanimate objects which have no volition of their own and which lend themselves without trouble to the purposes of man. But germs are not inanimate, they are living things, and they have a personality, and entity, that cannot be overlooked. Germs have opinions of their own, they have their likes and dislikes, they have a well-established affinity for some people and they have a very marked antipathy for others. And, however fully one may approve of the doctor's decision to use germs, one cannot help wondering how the germs will feel about it, whether they may not resent this decision which was arrived at without consulting their wishes in advance. For it is well known how proud and sensitive germs are, and, as likely as not, they may rebel against what may appear to them as an undignified and insulting attitude on the part of humans. For a long time now they have enjoyed the respect, even the fear, of humanity, and who can say that they will not consider the Minnesota doctors' attitude a slur on their national pride? If they do, and it is not at all impossible that they may, the duel so amicably arranged may suffer the direst consequences. It has been arranged that both gentlemen subject themselves to exposure to germs of the most virulent type, typhoid, smallpox, bubonic plague, and other fascinating diseases; but what if the germs should become sulky, should feel insulted, and, at the critical moment, refuse to enter into the dispute? What if they should refuse "to bite" the fearless duellists? It would be disheartening in the extreme. It would be a disappointment from which an anxious world would not recover so easily. And it is a hazard which the duellists cannot invite. In the interests of science, in the interests even of the issue that has arisen between the two gentlemen, one feels impelled to suggest that they improve their respite between now and the day of the duel in trying to cajole the germs they have selected into consenting to the use for which they have been chosen, to persuade them that it is in the interest of humanity that they infect and infect with a good will when the word is given.

The Case of Henry Ford.—Genius is, in a sense, necessarily a form of limitation. The human brain has a certain measured capacity, and, if it attains its utmost development in one regard, it must often do so at the sacrifice of others. The price of great knowledge about one thing, is often the forced neglect of many other things. Bearing this in mind, it becomes obvious that a shrewd cynic could easily prove that any genius is an ignorant man by ignoring the one subject which the genius knows thoroly and pressing hard for answers on the subjects which he has had to sacrifice in order to attain supremacy in his specialty. It is this method that has been pursued by the lawyers who cross-examined Henry Ford in the libel suit that has held the interest of the country for so long and which has been given such wide publicity by the newspapers. These lawyers so conducted their examination as to leave the public with the impression that Mr. Ford's ignorance is appalling. It is quite true Mr. Ford showed that he was unfamiliar with many things, but, by pursuing a similar method, it would be a very simple task to prove any highly specialized mind to be incompetent. Jascha Heifetz is the most brilliant of the new violinists, a remarkable musician, a genius in the fullest sense of the word, but anyone bent on exposing his ignorance could do so without any trouble by ignoring the one subject he knows thoroly and sounding him on every subject but that. Thomas A. Edison is one of the great geniuses of the world, but it is a safe wager that he could not offhand hum the andante of Schubert's C Major Symphony or answer many questions in regard to this nation's early history to save his life. John Burroughs, the naturalist, like Edison a warm friend of Henry Ford's, would have an extremely uncomfortable time trying to give the names of the three leading batsmen of the National League, a fact known to the shabbiest little street urchin. The achievement of the lawyers was a trifling one, and the public will hardly as a consequence of it hold in less esteem the man whose services in the last decade or two have been so completely the common property of the nation—the man who defeated the Selden Patent and thereby did such a great service to the American people and American in-

dustry; the man who invented and brought within the reach of the poor man an automobile which has no rival in point of economy and efficiency; the man who pointed the way to employers thruout the land in improving labor and factory conditions.

But there is much more than this to counteract the impression the lawyers have sought to establish. It is commonly recognized that the skilled attorney, with years of experience in the court-room, has a great advantage over an inexperienced witness who is subject to the elements of nervousness, anger, personal antagonisms and hastiness, and an unscrupulous cross-examiner can lead an unsuspecting witness to make statements which are ridiculous or erratic in the extreme. For example, it is a comparatively simple thing to coax a modest man like Mr. Ford to admit that he is ignorant on many subjects. If for no other reason, his modesty alone would prevent him from admitting anything else. But over and above everything else, there is an element in the trial which has worked enormously in the favor of Mr. Ford, as far as the esteem and affection of the large public is concerned. Anyone who has ever served on a jury will know that the men in the box invariably are distrustful of the sharp witness and they are disposed to discount the testimony of a clever individual. On the other hand, they have a tendency to lay great weight on the testimony of a retiring, modest witness, believing that what he says must be of value because he is not of a type to invent subtle evasions. The effort of a prosecuting attorney to trap such a simple witness, an easy thing to do, counts for very little and is often not even taken into account in arriving at a verdict. What must have impressed everyone who has followed the Ford trial in the papers is the amazing honesty, simplicity, and lack of affectation in the man. He was as ready to give testimony against himself as in favor of himself in order to establish what he considered the truth, and no one could fail to admire his plucky willingness to assume all responsibility himself. His is a remarkably simple, straightforward nature. And his frank, humane, uncomplicated attitude toward war is the attitude of the vast majority of men, whatever their intellectual attainments may be. He hated war—most of us do. He was afraid of preparedness

—most of us are; and it is a pity that his lawyers did not bring out the fact that it was German preparedness which made the world war possible; it is a dangerous weapon which the less conscientious elements are tempted to use in their interests. He thought war was murder and he did everything possible to keep this country out of it in order to prevent murder; and if he bent all his energies toward helping his country win the war once we were in it, it was because of the humane realization that it would be less costly in human life to forward the war than to hinder it. The lawyers attempted to prove him inconsistent, but he was consistent always. He was the average human being who hates war and who fights like the very devil when he is made to do what he hates. The American Army was the powerful instrument it was because it was an army of pacifists forced to leave its peaceful pursuits and determined to end war forever, to destroy the nation that still believed in war as an instrument of progress and achievement. And there is one detail which came out in the trial which has the greatest significance in revealing the quality of the man's earnestness and honesty. Many sons of the rich, swivel-chair patriots, rushed into cover early in the war and got themselves soft berths which kept them in safe places and permitted them to wear khaki and talk loudly of the great things they were doing to help win the war. Mr. Ford's son, legitimately exempted because he was important in an essential industry, could have worn khaki if he wanted to, but he never did tho he could have done so with greater justification than some of the noisy young patriots. His father felt that he was merely doing his duty, like the workers under him, and that there was no reason for any special ostentation on that account. It is things like this, which have come up thruout the trial, which have won a wide sympathy for the simplicity and the genuineness of the man. Whatever the extent of his general knowledge, his heart has always been in the right place. He may have been wrong in some of his views, but it is one of the precious privileges of democracy that a man may be sincerely wrong without incurring any punishment. In pursuing what he felt was the right, the humane path, Henry Ford never violated the law, never employed any

methods but those which the constitution permits every free citizen. His is a frank, simple nature; but the great truths are as accessible to the simple people as they are to the sophisticated. And he tried to proclaim the truth as he saw it. He spent a considerable part of his fortune in trying to bring this truth before the public. We cannot help feeling that many millionaires have spent their money in much worse ways than that, and that many rich men, claiming to be well educated have done a great many things that Henry Ford's innate sense of right would never let him do.

The Narcotic Question.—The narcotic drug problem continues to serve as a subject of acrimonious discussion with its solution apparently no nearer. To the regret of a good many thoughtful people, Health Commissioner Copeland has instituted his promised system of registration. It is too early to determine the success or failure of this system and it is only right to withhold criticism until it has been given a fair trial. There can be no question but that it has worked a great hardship on many innocent sufferers and added greatly to their cup of misery. But the ultimate benefits may justify all this, and we hope nothing will arise to cause Dr. Copeland to resign before his ideas relative to the control of drug addiction have been well and thoroughly tested. It is too bad that he was unable to use the buildings placed at his disposal by the Rockefeller Foundation, for the plan to use them to provide institutional care for narcotic addicts was an admirable one. Those who prevented its consummation either thru prejudice or unwillingness to furnish adequate funds have shown a most deplorable lack of interest in this problem of drug addiction. Dr. Copeland's work, however much some of us may honestly disagree with him in regard to certain of his methods of handling the drug addict, surely deserved better cooperation from the Mayor and the Board of Estimate. One thing is certain, those who disagree with the Health Commissioner in some respects, cannot fail to approve his fight to have the drug addict considered a sufferer from a definite disease requiring intelligent treatment, rather than a vicious individual or criminal deserving correctional punishment.



ORIGINAL ARTICLES

RECONSTRUCTION AND THE MEDICAL PROFESSION.¹

BY

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Reconstruction is the catchword of the hour, and in discussing reconstruction and the medical profession it is essential to clearness to define the scope of the remarks, for there is little doubt that the term "reconstruction" means many things to many men. Furthermore the changes which should be brought about in the organization of the medical profession may be considered from many points of view, so many in fact, that it is necessary to consider only a few of them. With regard to the significance of the word "reconstruction" I would state that medicine has always progressed by evolution rather than by revolution, and that while the word "reconstruction" may be used as a peg on which to hang certain ideas, what we are really endeavoring to do is to take advantage of the present state of flux to accelerate certain changes which have been developing for many years. With regard to the particular aspects of the reconstruction of the medical profession which are to be considered, it has seemed to me that those which are of the greatest interest to the general

public are the ones which concern the contact between them and the profession, rather than other more abstruse aspects, such as medical education, or the purely scientific aspects of medicine in which the general public is not so widely interested.

An intelligent discussion of the changes which should be brought about in the relationship of the medical profession to the public demands a brief statement as to the present organization and functions of the medical profession, and the present attitude of the public toward the profession and its functions.

As at present organized the medical profession can be divided into two great groups: *First*, the so-called practicing physicians who come into contact with the public as individuals, and *secondly*, the much smaller group of physicians who are engaged in public health work, and come into contact not with the individual but rather with the community. It is hardly necessary to remind an audience of this kind that recent years have seen an increasing tendency to specialize among both groups of physicians. There have been those who have suggested that the old type general practitioner or family doctor was doomed to extinction, a view which in my opinion is entirely erroneous. It is, nevertheless, true that the proportion of the practicing profession which is engaged in special work has been steadily increasing so that we now find

¹ One of a series of lectures on the problems of reorganization, delivered under the auspices of Yale University on the Dodge Foundation.

many men who devote their entire time to particular diseases: eye and ear, nose, throat, diseases of the nervous system, etc., or who are confining their work to institutions. It is true that this process is seen in its most intensive form only in the larger cities, but it is also to be noted that modern methods of transportation have made really remote country districts so scarce that we are beginning to find groups of specialists developing in the smaller towns which serve as centers for the surrounding country. In the public service group, too, specialization is beginning to appear as the old broad field of public health is being divided into smaller ones.

While the bulk of the medical profession is still engaged in private practice the proportion engaged in community work of various kinds has been steadily increasing. This increase has been due to a variety of causes, but after all the most vital and fundamental cause has been the general growth of the feeling of social obligation which in the case of the medical profession has taken the form of an extension of various forms of community work by physicians. The school physician for example, is the growth of the past generation.

Just as the organization of physicians can be discussed under the two heads of the public and the private physicians, so the function of physicians can be considered in the same way. The first function of the great bulk of the medical profession is still the treatment of disease in the individual patient. On the other hand the work of public physicians is almost entirely preventive, as in the case of the members of the United States Public Health Service, health officers, or school physicians.

It must be apparent from the preceding remarks that the medical profession has in

the past been mainly concerned with the cure of disease and to a lesser extent with the prevention of disease. The chief hope of the medical profession for nearly a hundred years has been that it would in time be possible to change the emphasis of medical practice from cure to prevention, and the burning problem of the day concerns the best methods by which this change can be brought about.

We may assume to begin with that no matter what steps may be taken to further the prevention of disease, sickness, to an extent that will require the services of large numbers of physicians of the practicing type, will continue for many generations, if not indefinitely. He would be either a very prophetic or a very reckless individual who would undertake to predict the extent to which the application of preventive measures would in the future affect the occurrence of disease. We may of course hazard some guesses as has been done by Professor Fisher in his valuable report on National Conservation, but it is well to recognize that while it is undoubtedly true that tremendous improvement can be made, any estimates as to the possible extent of that improvement are nothing but guesses. Two problems therefore confront us, one to determine the best methods of improving the treatment of disease and the other to ascertain the best methods of preventing disease.

One of the most important factors in the cure of disease is its early recognition and its early treatment. Even the intelligent public have not fully appreciated this. There is often delay in calling the physician because many serious illnesses have in the beginning the appearance of trivial indispositions. There are other delays which are due to sentimental factors and still others to financial factors. The most distressing

example of delayed treatment due to factors of sentiment is that presented by the insane. There is a certain stigma in the minds of the public which is attached to hospitals for the insane, a stigma which results from tradition rather than from reason. Furthermore the judicial procedures and the publicity connected with the commitment of an insane individual to an institution act as a deterrent. There is in many states a lack of proper provision in the form of psychopathic wards in connection with general hospitals where voluntary commitments without legal procedure are possible. These unfortunate circumstances have the practical effect of causing the friends or relatives of the insane to put off institutional treatment to the last possible moment, greatly to the detriment of the patient. An example of what is meant by financial difficulties preventing the early treatment of disease in the case of the worker who is subsisting on a bare living wage which permits of no waste of money. The patient fails to consult the physician early because he feels he cannot afford it. The investigations which have been conducted in recent years in connection with health insurance have indicated that notwithstanding the fact that most large cities have their free dispensaries, a not inconsiderable percentage of workers of the class named fail to consult the physician when they are suffering from illnesses which to them may seem trivial, but which are in reality the beginning of some chronic and incapacitating disease. This is sometimes due to the lack of evening clinics, the patient feeling that time cannot be spared from working hours.

There are certain other aspects of medical diagnosis and treatment which present definite problems of interest to the general public and especially to the citizen of mod-

erate means. With the increasing complexity of medicine has come an increasing expense to the public. In the old days the armamentarium of the successful practitioner consisted of a stethoscope, a reasonable degree of intelligence, and a good bedside manner. There are still diseases so obvious that nothing more than this is needed for their recognition and treatment. On the other hand, complications arise in connection with the most obvious diseases which require methods of investigation or methods of treatment which were unknown to our professional ancestors. There are many diseases which are exceedingly obscure and their diagnosis involves the use of various expensive procedures and tests, such as X-ray examinations, bacteriologic and serologic examinations, blood examinations, and extensive and costly analyses of secretions and excretions. Many of the laity know from painful experience that this is an expensive process, and the statement not infrequently made that it is the very rich and the very poor who get the best medical treatment contains more than a grain of truth. This increasing complexity of medical practice has resulted in a form of organization in the profession itself which, while fairly common in the middle west and far west, has not yet appeared very frequently in the east. The form of organization to which I refer is the so-called group practice. It is perhaps best illustrated by an institution like the Mayo Clinic where an association of specialists of different kinds have built up and organized an institution for the intensive study of disease. In many of the larger cities of the west, little Mayo Clinics, so to speak, have sprung up. A group of physicians consisting perhaps of a general diagnostician, a surgeon, an X-ray special-

ist, a laboratory specialist, and an oculist and aurist have associated themselves so that if a patient applies to any one of them and is found to be suffering from some obscure disease, each of the firm makes an examination with his particular specialty in mind, and the resulting conclusions drawn from all of the examinations are much more likely to solve the case than the conclusions of any one man of the combination. From the point of view of the public, group practice is almost as expensive as traveling around from specialist to specialist, altho the association of physicians into a group very often results in a cutting down of the overhead expenses for rent and service, so that a regularly organized group can give an opinion at a less expense than a group of scattered specialists. Nevertheless the expense of this type of examination to the patient is so serious that unless it is conducted in the charity wards of a hospital only individuals with not inconsiderable incomes are able to afford it. An attempt has been made at some places, notably at the Massachusetts General Hospital, to meet the situation by organizing such groups of physicians in connection with the outpatient department on a semi-charitable basis. The patient unwilling to be regarded as a charity patient whose obscure condition is to be investigated presents himself or herself at the outpatient department on stated days, receives the group examination, and pays a modest fee.

The question of the prevention of disease is a complicated one in which three main factors are concerned. These are the nature of disease itself, the reaction of the community to health problems, and the reaction of the individual to health problems. I have purposely avoided naming the physician as one of the factors, because he

serves merely as an instrument and his functions will, in the last analysis, depend upon what the public wants.

It goes without saying that in order to prevent disease it is necessary to have a clear conception of the nature of disease, and here we meet with our first stumbling block. Our knowledge of the nature of disease, while it has grown enormously and is constantly being extended, is still far from complete. There are certain groups of diseases, the infectious diseases particularly, concerning which we possess sufficient knowledge upon which to found a rational system of prevention. On the other hand, there are other groups of diseases such as the so-called degenerative diseases like cancer, hardening of the arteries, Bright's disease, etc., our knowledge of which contains very serious gaps. It is true of course that tentative attempts at prevention can be made even tho one's knowledge is not absolutely complete, but it is clear that at any rate for certain kinds of disease our efforts at prevention will be for some time and to a certain degree, a groping in the dark.

The present reaction of the community to health problems can be pretty well estimated from the experiences of the past century, for the reason that it was during that period that what may be called community preventive medicine, has been developed. The main function of public health as developed up to the present time has been to originate and organize methods of preventing the wholesale spread of disease and particularly of certain infectious diseases which may be transmitted by methods controllable in a large way. Such matters as the regulation of public water supply, the proper disposal of sewage, the regulation of insanitary housing, the control of quarantine and measures of this kind represent the type of

public service that the medical profession has been mainly giving during the past century. The reaction of the public to such measures has on the surface been satisfactory, the measures being of course promulgated in the form of laws, the infraction of which was punishable. It is not necessary, however, to go very far below the surface to find evidences of three factors which have obstructed progress in public sanitation, these factors being indifference, ignorance, and greed. The indifference of the general public to the enforcement of sanitary measures has usually been demonstrated when as the result of that indifference some widespread outbreak of preventable disease has occurred. The indifference is, no doubt, partly founded on ignorance, a factor which is more important in connection with personal than with communal hygiene. The element of greed is an obstructing factor in various ways. It is merely necessary to recall, as an example, the fact that it has been necessary to enact laws against unhygienic homes and overcrowding because landlords of the commercial class have been concerned with their profits rather than with the health of their tenants. Even at the present time one does not have to go far to discover that where there is a conflict between the laws of health and unscrupulous or unthinking commercial interests, it is the laws of health which usually suffer.

The question of the reaction of the individual in matters of health is becoming an increasingly important one. The nineteenth century was the century of communal hygiene. The twentieth century is to be the century of individual hygiene. I do not mean by this to convey the idea that the work of communal hygiene is at an end. This is by no means

the case; it must always continue. As time has gone on, however, it has become increasingly apparent that communal hygiene would carry us so far and no farther, and that in the last analysis the prevention of many diseases is a question of individual hygiene. It is difficult to estimate to what extent the public has reacted to this view, which has perhaps not become sufficiently diffused among them to attract their attention. We know that they have reacted to some extent. Vaccination against smallpox is both a communal and an individual matter. An increasing number of individuals has voluntarily submitted themselves to vaccination against other diseases like typhoid fever, but as yet there has been no general reaction on the part of the public as to the significance and importance of individual hygiene.

It is clear then that in the prevention of disease certain methods which are already in use must be continued and must be extended. The community methods of disease prevention which have already been mentioned, namely, the question of proper water supply, proper disposal of sewage, proper housing conditions, and adequate health supervision by trained experts must become universal. At the present time it is fair to say that this aspect of preventive medicine has not been carried to its logical conclusion even in the most civilized countries. Only the other day there was a report in the *Journal of the American Medical Association* of an outbreak of water-borne typhoid fever in a fairly large American city. The proper disposal of sewage is notoriously lacking in a great many American communities, particularly in rural communities. The question of overcrowding and improper housing has been re-emphasized by the conditions of the

war. A few months ago a prominent manufacturer in a neighboring city told me that many of his laborers who worked in eight-hour shifts were living three and four in a room, and that if a room had a bed in it, the bed was generally continuously occupied by relays of workers. While such conditions as these are perhaps temporary, it is nevertheless true that there are still thousands of rooms in a city like New York with no windows at all, or with windows opening into a dark air shaft. In order to completely carry out the known and tried preventive measures of community hygiene it will be necessary for the American public to accustom themselves to a much higher rate of taxation than that which they enjoy at present.

The problem of the education of the individual in proper methods of living and of escaping disease is the most important one before us at the present time. It involves not merely the medical profession but also the educators of the country, because it is clear that the problem is largely an educational one. If every child were taught in school the principles of right living, including such matters as the principles of nutrition, and the proper choice and preparation of food, fresh air, exercise, bathing, recreation, and the known methods of avoiding infectious diseases, a long step would have been taken in the direction of inaugurating individual hygiene. However, the educational side of the matter is only one side, and of itself would not suffice to bring about satisfactory conditions. It must be combined with compulsory physical training under professional supervision, for the health training of the child, even tho appreciated and understood by the pupil, will often be counteracted by the ignorance, indifference and prejudice of the parent. The

professional supervision should begin before the birth of the child. Work of this kind has already been inaugurated in many places under the general title of prenatal nursing. While such work must of course be under medical supervision, the actual contact with the patient can be brought about thru specially trained nurses, and the great bulk of the work can and probably must be done by them. Following the birth of the child, particularly among those classes who are unable to afford the expensive help of a trained nurse, the work of education should be conducted thru infant welfare stations, as is already done in many places. Some of you may have noted that there is already a move to extend this work and to carry it on beyond the period of infancy into the period of childhood. Dr. Emmet Holt of New York was, I believe, the first to suggest the necessity for continuing infant welfare service as child welfare service. His suggestion is without question a most excellent one, the only criticism of it being that it does not go far enough. The principle under which prenatal service, infant welfare service, and child welfare service have been originated is the principle which must underlie the individual preventive medicine of the future. That principle is of course the periodical medical examination of the individual irrespective of sickness. It is, in a sense, a return to the Chinese tradition of paying the physician to keep one well, and paying him nothing if sickness occurs. At the present time we find only sporadic attempts to put this principle into operation among individuals past the age of childhood. Several universities have health departments before which students must appear at stated intervals and submit to physical examination. Some of you are doubtless familiar

with the fact that certain life insurance companies furnish free of charge an annual examination to their policy holders, and some of you are doubtless acquainted with the work of the Life Extension Institute which for a small fee furnishes an annual examination to its members. All of these are moves in the right direction, but like Dr. Holt's child welfare clinic they do not go far enough. What is necessary in order to carry individual preventive medicine to its logical conclusion is the periodical examination of every individual from the cradle to the grave. It seems to me that by beginning in infancy and childhood this can be brought about and that this is the only way that it can be universally brought about. One can imagine a period in the future when it will be just as natural for an individual to submit to a periodic health examination as it is to clean the teeth or brush the hair. It is this condition that we must aim for. One of the great difficulties in the prevention of many of the most serious chronic diseases lies in the fact that we do not see them until they have progressed beyond repair. As a matter of fact we do not see them because we have not learned to recognize their early stages. A well-known but somewhat iconoclastic Scotch physician recently remarked of a learned volume on hardening of the arteries that it was like reading the third volume of a three volume novel. In other words, it was a discussion of end results and not a discussion of beginnings, and the reason for this was not lack of acquaintance with current medical knowledge on the part of the writer, one of the most learned of physicians, but was merely an expression of the fact that no one in the medical profession is at present acquainted with the early manifestations of

arteriosclerosis. It is only by some system of periodic examination that we shall ever become acquainted with the early manifestations of the chronic diseases and it is hardly necessary to add that until we have become acquainted with their early manifestations we shall never prevent them.

Any plan of individual preventive medicine which involved merely the physical examination of the individual would be, to say the least, one-sided. Along with proper physical examination must go an adequate mental examination. Not merely from the point of view of health, but also from the point of view of education and of success or failure in life this mental examination is of the greatest importance. At the present time the mentally fit children are penalized by their association with the mentally unfit, altho in some cities a serious attempt is being made to remedy this by the sorting out of the mentally defective children and placing them in special classes. From the medical point of view the great necessity is the recognition and segregation of the feeble-minded. There is good reason to believe that the number of feeble-minded in the community is quite considerable. In Connecticut Professor Gesell states that approximately one and one-quarter per cent. of the children of school age are definitely feeble-minded. It is frequently not recognized by the general public that the problem of the feeble-minded is quite different from the problem of the insane. An insane person once possessed a mind and therefore there is a chance that he or she may recover it. A feeble-minded person is suffering from an inborn lack of mind and this lack can never be supplied. The most important medical aspect of the problem of feeble-mindedness lies in the fact that it is transmissible, and that if the

feeble-minded are permitted to be at large and to marry without restraint, the problem will become with each generation a more, rather than a less serious one. For this reason routine mental examinations as well as routine physical ones should be insisted on. It may be added, tho this is not strictly a medical subject, that there is little doubt that methods will be perfected by the psychologists whereby these routine mental examinations will result in an ability to apply intelligent vocational guidance to young adults at the outset of their life work and to prevent many of the occupational misfits which are now so common.

So far in discussing the reorganization of the medical profession I have made no reference to its possible future relationships to other professions and particularly to the nursing and engineering professions.

If it is true that the future of medicine lies in the prevention of disease and that the future of prevention lies not only in the continuation of the present community hygiene, but in an extension of preventive methods to the individual, it must be clear that the medical profession as at present constituted will be entirely insufficient to carry on the work. This being so one of two things must happen—either the medical profession must increase tremendously in numbers, or it must call in to aid it other allied professions. The history of medical education in the United States for the last twenty years shows a progressive diminution in the output of physicians due partly to the elimination of large numbers of commercial medical schools and partly to the increasing complexity of medicine with its increasingly long and expensive period of preparation. It seems probable that the increased personnel, which will be demanded by emphasizing individual hygiene, will not

be supplied from the ranks of physicians but will result from the development of trained helpers recruited from the nursing profession and from social service workers. It is not impossible that entirely new types of public health workers will be developed. One can readily foresee that if the public ever accepts to the full the principles discussed above, the number of communal physicians and communal nurses will increase enormously, partly, of course, at the expense of the individual physicians and nurses. There are already indications that to some extent this process is taking place. The increasing amount of work which is annually done by visiting nursing associations, and the increasing number of nurses who are going into public health work are straws which show which way the wind is blowing.

So far as help from the engineering profession is concerned, it is clear that this will come not so much on the side of individual hygiene as on the side of communal hygiene. Indeed it is already apparent after two or three generations of communal hygiene that the engineering profession is perfectly able to occupy the higher positions in connection with the administration of sanitary problems, which were formerly occupied by medical men, and while I believe it to be a mistake to eliminate the medical point of view entirely from communal public health, I do believe that much of the work involved in this particular form of preventive medicine can be carried on by members of the engineering profession.

It does not seem particularly profitable to present theoretical possibilities without at the same time facing the practical problems connected with their adoption. So far as I know no accurate figures are available at the present time giving the amount

of money which is annually expended by the American public for the cure of disease. The contemplation of the amount of money that is annually expended for the prevention of disease in the way of national, state and municipal health departments is, if contrasted with some other expenditures, a subject likely to give rise to mixed emotions. The United States Government is willing to expend enormous sums in investigating the diseases of hogs, or the diseases of wheat, but comparatively small sums in investigating diseases of human beings. There is a United States Department of Agriculture, but there is no United States Department of Health in the wide sense. The amounts spent by States on their health departments as contrasted with the amounts spent on some other departments must be a source of joy to the cynically minded, and if those of you who are local tax-payers will contrast the percentage of your taxes that is devoted to public health with the percentage that is devoted to the protection of inanimate property, you will, I think, find food for thought. All of this leads up to the question of whether an attack upon disease from the standpoint of prevention rather than from the standpoint of cure will be more or less expensive than the present system. At the present time I think it is safe to say that no one knows. It is quite certain that in the beginning, that is before the period when the new preventive measures have a chance to reduce materially the prevalence of disease, the process would probably be an exceedingly expensive one. One of the forms of public education which is most seriously needed from the standpoint of health is the education of the taxpayers in the point of view that they have got to pay much larger sums than they have

been accustomed to pay for this particular purpose.

Summary.—If we attempt to summarize what we have said in the form of conclusions, they would be about as follows:

(1) The medical profession is at present mainly organized with a view to the cure of disease rather than the prevention of disease.

(2) It is highly desirable that the emphasis should be changed and that prevention should be not only recognized as the desirable ideal but that more active measures be taken to put it into effect.

(3) Aside from communal methods of prevention, such as good water supplies, good sewage, proper housing conditions, etc., which must not only be persisted in but must be made universal, the hope of the future lies in individual hygiene.

(4) The basic principle underlying the enforcement of individual hygiene is the periodic health examination and this must begin with the examination of the expectant mother and must continue thruout the life of the individual from infancy to old age. Combined with it there must be obligatory instruction of all children during the school age in the fundamental laws of health, and to this must be added obligatory physical training.

(5) In order to carry out this program it will be necessary to greatly increase the number of community physicians and at the same time to greatly increase the number of their co-workers, the public health nurses.

(6) It is doubtful whether a wholesale change in the methods of medical practice such as has been suggested can be brought about in the first place without great expense. Whether this expense should be met by an increase in direct taxation or whether it could better be met by the extension of the principles of health insurance is a question which can perhaps be more satisfactorily decided by the economists than by the physicians.

(7) The successful diagnosis and cure of the more obscure diseases have become so complicated and expensive that ways must be found of permitting the average citizen to avail himself of modern methods at reasonable cost.

SOME OBSERVATIONS ON CIRCULATORY DISORDERS.¹

BY

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There has been considerable progress made in scientific medicine in late years, and with this has grown a better knowledge of circulatory disturbances, but concerning some phases of these conditions there still remain some points of dispute.

The mass of literature available upon this subject should clarify the haziness of the atmosphere, but unfortunately the deductions are not uniform and different writers have as many different views, which tends to confuse. This applies to hypertension particularly. The word "essential" is one that when applied to high blood pressure opens up controversy. Some of the prominent internists insist that high blood pressure is essential to sustain the circulation. Why should a blood pressure be essential? In the Standard Dictionary one of the meanings given to the word is, indispensable, while another is, idiopathic or not connected with any other disease.

In the case of a young physician under the writer's care for some months running a systolic pressure of over 200 mm. hg. with a correspondingly high diastolic during the early part of his treatment, the statement was made by one of the prominent internists that his pressure was essential. This was subsequent to some weeks of observation and all known laboratory and other tests having been made with negative findings, the work being done in one of the recognized high grade hospitals. He was told to go home and forget it.

¹ Read before the Amer. Electro-Therapeutic Asso., at Boston, Mass., Sept., 1918.

He questioned the value of the advice and sought treatment for what he believed to be something pathologic in spite of the above statement, recognizing that there was at least an intestinal toxemia that needed attention and which was largely responsible. In addition to this, there was a large nervous element in the case which he recognized. In his and the writer's judgment, had his hypertension been essential to his good health, he should not have had to give up a large and lucrative practice on account of being too ill to attend to it, but should have felt in prime condition. The outcome of the case proved this contention. The usual recognized methods of treatments by auto-condensation, wave current, and vibration, together with dietary and other care, brought his pressure to normal, and with this, a return to health and resumption of his practice.

The word "compensatory" is another that is over-worked by some. There are cases that are satisfactorily recognized as compensatory owing to organic changes, but the statement that "nature does not cause a pressure above what is necessary for circulatory purposes" is not correct. Those who make such a statement advise against all methods of reduction other than what can be done by rest and diet. The falsity of this is being constantly demonstrated by all who are treating such by electrical methods.

In the cases of early hypertension, aside from the intestinal toxemia, we will find the nervous element to be the one factor that stands out in a prominent way etiologically. In normal conditions, the vaso-motor center in the medulla is in a state of moderate tonic excitation. It can be stimulated directly or reflexly. Fluctuations in the irritation of the center accompany respiratory

movements (Trauben-Hering Fluctuations) as can be seen from the simultaneous increase in blood pressure. The course of the vaso-motor nerves is such that in part medullated and in part non-medullated nerve fibres partly mixed with ganglion cells, pass to the muscular coats of the vessels. They make their exit thru the anterior roots of the spinal nerves, then pass thru the visceral branches into the ganglia of the sympathetic cord where the ganglion cells are intercalated in the course of the individual fibres. In the sympathetic cord they pass upward or downward and finally hence either to the vascular plexuses or thru other visceral branches again into the trunks of the spinal or cerebral nerves and from these to the respective vessels.¹

This will explain the nervous element in these cases of simple hypertension. The sympathetics are most easily influenced by the various outside influences, and while there are no degenerate changes apparent, the vessels in time assume a habit of contraction, which is the fore-runner of a permanent condition. Such cases were better called hypertonia vasorum, where the nervous element seems to be the leading feature.

A form of circulatory disturbance now easily recognized by the initiated but not by the profession at large, is that known by the term splanchnic neurasthenia. This name is not altogether satisfactory, but is one that has been accepted as embodying a certain definite series of symptoms, all of which are fairly constant. The objection is directed to the word neurasthenia. These cases are frequently very neurasthenic, but there is an early stage when these evidences are not so apparent, yet show other signs that are pathognomonic. Abrams coined the term to meet the more advanced cases,

who usually have the "blues," and who at times show evidences of some mental involvement. During the earlier stages when the patient shows a moderate insomnia and periods of nervous excitability, and perhaps some anemia and a general lowered vitality, and having periods of fair health, it would not seem fair to place them in the category of neurasthenics. These symptoms will lead one to investigate the case carefully, and when the usual findings are noted, early treatment may save such from the later stages. Owing to the usual ptoses, hepatic engorgement, intestinal stasis, irregular and reversed blood pressure and pulse findings, these cases would be better known as splanchnic relaxation or insufficiency. They may be of a hypertension type, but are more usually found with a hypotension, but always with the reversed pulse and blood pressure, sitting and lying down, and unequal in the arms. According to Abrams "the factors which contribute to the development of splanchnic neurasthenia are essentially nerve force lacking in the muscles of the abdomen and in the nervous mechanism which regulates the supply of blood in the abdominal vessels."¹

The splanchnic circulation is made up of the portal vein and its branches and the arterial branches of the celiac axis. Normally when one stands erect, the splanchnic vaso-motor mechanism causes a constriction of the vessels resulting in an elevation of blood pressure. When this nerve mechanism is defective thru loss of tone or some other cause, the reverse is true, the constrictive effect is lost and the vessels become engorged and the pressure falls. This involves the liver in a series of engorgements which condition soon becomes pathologic. With this there is associated

¹Landois Physiology.

¹Spondylotherapy, p. 346.

a venous stasis of the right ventricle. In addition we have toxic symptoms as the result of the hepatic and intestinal poisons affecting the nervous system, largely because the circulatory stasis prevents their removal and they are held in the liver with the result of self poisoning.

This liver engorgement is one of the more prominent features of splanchnic relaxation and usually can be found in all stages of the disorder. This organ containing normally about one-quarter of the blood of the body, is necessarily easily engorged, and in the early stages it may be considered as compensatory. The question arises as to when this ends and the pathologic condition begins. The solution depends largely upon when one sees the patient, early or late in the case.

In the treatment of this condition it is well to bear in mind a few points. The splanchnic is the most important of all the vaso-motor nerves supplying the abdominal viscera. Its fibres arise from the 5th to the 12th dorsal inclusive, which corresponds to the vertebral interspaces of the 2nd to 8th dorsal. Irritation of the communicating branches between the 11th dorsal and 2nd lumbar nerves causes a marked dilatation after a primary contraction of the vessels. This effect may also be produced by irritation of the vagus. Long continued irritation of the nerve finally causes exhaustion and at the same time gives rise to symptoms of paralysis of the vessel walls.¹

It can be readily seen how vibration of the vertebral interspaces corresponding to the splanchnic vaso-motor nerves distribution will effect that area. Treatment applied for the relief of the splanchnic engorgement and relaxation must necessarily

be of the type best suited to reduce this and supply the necessary nerve stimulus. It is well to check off fluoroscopically your findings, as well as to use the same measure for "keeping tab" on the progress of the case. In many advanced cases there will be found a small or considerable bulging of the aorta, almost aneurismal in type, as well as the cardiac dilatation. This studied by the fluoroscope, will be a great help as well as adding interest in watching the progress, for in the writer's cases, this had disappeared with the lessening of the splanchnic engorgement, and has disappeared before the hepatic enlargement has.

These cases do best, in the writer's judgment, by the use of vibration of the spinal area, diathermy of the liver, wave current applied over the upper abdomen as well as over the liver, together with exercises that help to strengthen the abdominal walls. In the sagging abdomens, with relaxed walls and ptosis of the stomach with the intestinal dropping, strapping with adhesive strips, properly applied, will add much to the comfort and have a distinct therapeutic value. The Rose strapping method meets the indications, using 2½ in. Z. O. adhesive. This must be removed at the end of a week and renewed, and kept on for two weeks, cleaning the skin well with alcohol before renewing each time. The third strapping may remain until it becomes annoying, when another can be placed as before. This strapping should be continued for three months at least, when it may be left off entirely, and if necessary, a supporting belt may be worn. This will be unnecessary in many cases, if the exercises have been kept up. The effect of the strapping is more than that of support. It keeps up a continuous slight skin stimulation and hyperemia which has its value in stimulating the

¹ Landois Physiology.

peripheral nerves and vessels, all tending to an added tonicity.

Some helps toward diagnosis in circulatory disturbances which are recognized are the following: a high diastolic pressure denotes peripheral and arterial resistance and a low diastolic shows the lack of this. A high pulse pressure with a low diastolic shows low peripheral resistance with relaxation of the splanchnics and an insufficiency of the general circulation. When we find a fairly high diastolic and a small pulse pressure, we have insufficiency of the myocardium and usually a condition of lowered vitality.

It is pathognomonic of aortic insufficiency to have a moderately high systolic and a low diastolic with the high pulse pressure.

With a mitral stenosis one may have a systolic of 140 mm. but it is not likely to have as low a diastolic as 60 mm. with a correspondingly high pulse pressure. In compensated mitral stenosis we have a disproportionately high diastolic (compensating vaso-constriction) and hence a low pulse pressure.

Chronic interstitial nephritis usually shows as a diagnostic sign the high systolic and relatively low diastolic. We may find hypertrophy of the left ventricle with a persistent high systolic, particularly when there is not good compensation. This continuing finally produces degenerative changes in the vessels, and with this we have a gradual lowering of the systolic and circulatory failure.

Aside from the usually recognized methods of treatment by electric currents and other physical measures, we must bear in mind that there are other things that must be taken into consideration. Four things are essential to the upkeep of normal cell activity, rest and reaction, nutrition and

elimination. We must learn to see on all sides of the case and meet all of the indications, and not allow prejudice to sway our minds, but be ever broad and liberal minded.

Maryland and Pacific Avenues.

IS CANCER EVER OF OCCUPATIONAL ORIGIN?

BY

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"Lamb," said Coleridge, "did you ever hear me preach?" The stammering wit replied, "I nev-never heard you do anything else." The homiletic habit becomes an impertinence and a bore when projected into general conversation; but here is a little preaching on occupational cancer which, it is hoped, the readers of AMERICAN MEDICINE may be disposed to regard with tolerance, notwithstanding its "sidelong moral squint" and hortative implications.

Concerning the occurrence of cancerous growths as a sequel of occupational injury, external violence or irritation, Professors Lubarsch and Theim, two of Germany's foremost living pathologists, have come to the same general conclusion by separate and independent methods of research. They hold that a malignant tumor *never* results from a single injury, maintaining that no scientific proof has hitherto been adduced to show that the development of a carcinomatous growth is ever traceable to an isolated traumatism.

Lubarsch regards trauma as only an indirect cause of neoplasms, remarking, "If one wishes to determine the effect of a single traumatism on the development of tumors, he must include statistics to show how often traumatisms occur in the same regions

without leading to the formation of tumors."¹ Furthermore, the author's experiments on animals tend to negative the theory that the growth of tumors is accelerated by continual irritation practiced for many months. In fact, Lubarsch proved that irritation often retards the growth, and sometimes even causes its subsidence.

Supplementing the work of Lubarsch and Theim, and corroborating the conclusions of French scientists, an article by Bullock and Rohdenburg published in the *Journal of Cancer Research* (No. 3, 1918) records the results of experiments conducted with a view to determining whether malignant neoplasms ever originate from irritation.

The American investigators proved that tumors which are indistinguishable morphologically from human epitheliomata may be caused in rabbits by the injection of irritants; but they hold that the morbid proliferation provoked by this means is not essentially malignant.

This opinion coincides with that of the French savants who claim to have demonstrated microscopically that growths produced by irritation are benign tumors, resulting from cellular hyperplasia, and are not of a malignant nature.

The conclusions reached by the investigators of both nationalities appear to be identical; while the reserved and cautious expressions of opinion by the American authors and the open and unequivocal declarations of the French illustrate the racial and temperamental idiosyncrasies peculiar to the respective peoples.

In reference to traumatism as an exciting cause of cancer M. J. Petty, Asst. Surgeon of Kawson Hospital, Buenos Ayres, main-

tains that even thermal irritation occasioned, e. g., by eating hot food, drinking hot coffee, etc., may be a factor in the production of gastric and lingual cancer.¹

In this connection it is germane to the matter to point out that, in human subjects, the parts most liable to trauma (the fingers, the elbows and the shins) are by no means most frequently the site of sarcoma or carcinoma. While, theoretically, the influence of trauma may stimulate the growth of a tumor, its effect is hard to prove in an individual case, because tumors do not increase in size at a uniform rate, but intermittently, with long periods of quiescence.

Dr. Lenoir of Paris affirms that traumatism has little influence on cancer and occasions it only in persons already predisposed to degenerative processes.

Dr. Verstraete, formerly chief of the surgical clinic at Lille, believes that *repeated* traumas or *prolonged* irritation may cause the development of cancer, as, for example, epithelioma of the lip in smokers, and the so-called cancer of chimney-sweeps.

Dr. J. B. Deaver of Philadelphia, describing a series of 534 operations for cancer, says that in only 13 per cent. of the cases was there any history of traumatism. Williams reports that in 1,000 cases only once did cancer follow an injury.

Writing of "Neoplasms of Occupational Origin" Doctor Cesa-Bianchi remarks that, according to the present state of our knowledge, there are but two kinds of occupational cancer, namely, those due to anilin, and those caused by the Roentgen ray. The misnamed "cancer of chimney-sweeps" and the tumors of tar and paraffin workers are mere proliferations of normal cellular ele-

¹ *Verhandlungen des III. Internationalen Medizinischen Unfallkongresses zu Düsseldorf vom 6 bis 10. Aug., 1912.*

¹ London *Lancet*, April 5, 1919.

ments, and, in a strict sense, not new growths at all.

It is proper to emphasize here the view now universally accepted that a laboratory diagnosis affords the only trustworthy proof of the existence of cancer. Gross appearances and clinical history often present *prima facie* evidence of malignancy, but this evidence is never deemed conclusive.

All recent research justifies a conservative and sceptical attitude as to traumatic cancer. At its session of May 1, 1918, the Société de Chirurgie of France discussed a report made by Dr. Vitrac of Libourne on three cases of tumor presumably resulting from injuries. There was a consensus of opinion that new growths may develop under the stimulus of traumatism; but whether tumors of this kind preexist as dormant germs which are merely awakened to activity by the injury, or constitute genuine neoplasms, is conceded to be a question at once difficult to determine and of great medico-legal importance.

The conference recognized the usual distinction between malignant and benign tumors; and while no one expressed a doubt that traumatism might sometimes cause an osteoma, the opinion prevailed that sarcoma could not originate in any such way. One member of the Société, M. Arrou, had seen a tumor, having all the outward characteristics of sarcoma, in a little girl several weeks after an injury. But when this tumor had been removed, it was examined microscopically and found to be of a purely inflammatory character.

In an address at a recent session of L'Académie de Médecine the retiring President, M. Georges Hayem, in summarizing the results of cancer research, said:

The study of these observations shows that traumatism may accelerate the develop-

ment of a cancer previously existing; that it may lead to the discovery of a tumor hitherto latent; but the evidences of a purely traumatic origin of cancer are at least doubtful, except in those cases, recognized long ago, in which traumatism of the bone sometimes results in the formation of a neoplasm called sarcoma.¹

The theory of the spread of cancer by contagion ostensibly derives support from the researches undertaken by Loir and Legangneux at Havre, covering the period from 1901 to 1916. It is to be noted, however, that their work related to the *epidemiology* of cancer, not to its etiology.

Are there cancer houses in Havre? To this hypothetic question they answer:

"We find that from 1901 to 1916 there were:

- 1894 houses in each of which occurred 1 death from cancer;
- 258 houses in each of which occurred 2 deaths from cancer;
- 24 houses in each of which occurred 3 deaths from cancer;
- 7 houses in each of which occurred 4 deaths from cancer.
- 1 house which occurred 5 deaths from cancer.

Statistics show also that

- 211 times death from cancer occurred in 2 adjacent houses;
- 39 times death from cancer occurred in 3 adjacent houses;
- 8 times death from cancer occurred in 4 adjacent houses;
- Once death from cancer occurred in 6 adjacent houses.

These results prove that there are groups of dwellings which appear to be cancerous foci."

Many of these cancer centers have a common character. They are situated along the margin of a water basin. The subsoil is very damp, the ground water rising within a few centimeters of the surface. Besides, the cancer localities are all near the markets, large stables or feed stores; that is, at points where rats abound.

¹ *Bul. de L'Académie de Médecine.* No. 1, p. 7.

What rôle does the rat have in the etiology of cancer? We do not know that it has *any*. The authors say, "Not one of the rats examined had cancer, and we found the trypanosoma only in the blood of one rat."

Still, it is a suggestive coincidence that sewer rats abound in the infected localities. These rats burrow in the subsoil, and their fur is always swarming with fleas. It is possible, at least, that the flea may transmit the virus or germ of cancer with its bite.

In common with Virchow, a pathologist *primus inter pares* of the 19th century, Prof. Theim acknowledges, "We know nothing of the real cause—the true genesis—of cancer." But tho the essential pathology and etiology of cancer are yet indeterminate, it is maintained by the respective protagonists of current theories that *heredity*, that *infection*, that *injury* or that *diet*, is the sole or main factor in the causation of malignant tumors.

Bulkley says that cancer has become more frequent as the people's diet has increased in luxury, and especially since the consumption of meat has become general. His experiments show that mice fed on rice cannot be infected with cancer, tho when placed on a meat ration they quickly succumb, victims of cancer virus.

Knights of Sanitation in quest of the origin of cancer appear to have become lost in a bewildering maze, unable to orient themselves. In pursuit of their object some have toiled painfully along the highway of heredity without arriving at any result. The mirage of infection has lured many into a Sahara of arid speculation. Pursuing the will-o'-the-wisp of traumatism (including in this term gastric lesions caused by ingested irritants) other pioneers

have found themselves mired in a bog of uncertainties. Yet each of these exclusive theories rests on a substratum of incontrovertible facts; and, as in the analogous instance of tuberculosis, a correct interpretation of all relevant phenomena must lead to a just conclusion.

It is to be remembered that tuberculosis was once held to be hereditary, and scientific observation seemed to sustain the hypothesis. But tho this opinion has been discarded as untenable, all agree that a tuberculous parent transmits to his offspring a debilitated constitution which possesses but slight power of resistance to tubercle infection. To this extent, then, there is a latent modicum of truth in the theory of tubercular predisposition by heredity.

Malaria is another disease of which the etiology was long misapprehended. The old and orthodox medical creed concerning this infection accounted for intermittent fever as a result of exposure to night-air miasms. It is no disparagement of Austin Flint to recall that, forty years ago, in his *Practice of Medicine* he espoused and expounded this theory of malarial causation. To that great clinician all the data appeared to support the doctrine. The theory was a legitimate and logical deduction from the evidence then available; for, beyond all controversy, it was shown that malaria attacked only such as had exposed themselves to "evening dews and damps."

No one denies this fact today, but the phenomenon is now differently interpreted, because new facts bearing on the subject have since come to light. The discovery that the anopheline mosquito is the intermediate host of the malarial parasite, that the infection is communicable to man

solely by this insect's inoculation of its victim, and that the anopheles flies only by night are links in the chain of evidence which incriminate the mosquito as the agent of infection.

Reverting to the cancer problem, it is unlikely that the corps of trained observers investigating this question are, like Ixion, pursuing a cloud-like phantom. The elusive shape which baffles detection is authentic Juno; but to establish her identity it would be absurd to fix attention exclusively upon her gait, tho *vera incessu patuit dea*.

We have reached the same stage of scientific knowledge in reference to cancer to which our fathers had attained in the study of malaria and tuberculosis fifty years ago. To sum up, it may be that the human embryo serves sometimes as an incubator in which *feeble-resistant seminal or germinal cells* become potentially malignant. But will the abnormal cell degenerate unless stimulated by *trauma*? Even then, is it not possible that the new growth, *if not infected*, may preserve a benign character? In other words, may not each of the current hypotheses as to causation of cancer embody a partial truth?

Cancer research has not yet reached the goal of finality, but it is nearing its objectives. Even failures in experimental work teach valuable lessons. Sometimes they indicate the necessity of more extensive and more exact control tests, or perhaps the futility of further exploration in *that* direction.

But a rational theory of the cause of cancer must be a deduction which accounts for all relevant facts; and Huxley's words are well worth recalling in this connection: "The man of science is justified, not by faith, but by verification."

1440 Clifton St.

CARDIOVASCULAR DISEASES DURING THE WAR PERIOD.¹

BY

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Introduction.—A classification of the cases from one of the medical clinics of the Mount Sinai Hospital Dispensary showed that 3.8% had cardiovascular diseases. It was found that for these cases general dispensary care was inadequate. Cases of heart disease as a rule require more time, attention and social study than most other medical conditions that present themselves in a general clinic.

On this account a number of special classes were organized for patients with diseases of the cardiovascular system.

At the same time attention was directed to the prevalence of heart disease in the community. It was estimated by the Bureau of Child Hygiene that approximately 15,000 of the 740,000 public school children in New York suffer from diseases of the heart. Mortality statistics revealed equally formidable figures. They showed that over 10,000 deaths are reported annually in New York as due to cardiovascular causes. In 1912, 48,000 persons died from heart disease in the United States.

Recognition of the magnitude of the heart disease problem and of its increasing medical, social and economic aspects, and recognition of the services of the several cardiac clinics then existing, led to the organization of the Association for the Prevention and Relief of Heart Disease, in the latter part of 1916.

¹ Report of a clinic conducted by the Mount Sinai Hospital Dispensary.

Later, in February, 1917, an organization was formed of the Associated Cardiac Clinics by affiliation of the physicians working in the various clinics specializing in diseases of the heart.

In November, 1917, the executive work and educational propaganda of these organizations were temporarily discontinued on account of the war.

The Mount Sinai Clinic.—The purpose of this survey is to sum up the experience of two years in the clinic for cardiovascular diseases. We shall confine ourselves to observations on the class for adult cases.

The Mount Sinai Clinics in Cardiovascular Diseases were opened in March, 1917, and held two sessions a week, one in the evening for adult cases and a day class for children. Within six months the growth of the clinics made it necessary to hold two sessions weekly for each.

There are some details in clinic management that apply particularly to cardiac cases. In order to minimize the physical strain and excitement of these cases, it was deemed essential to avoid their waiting in line for their tickets of admission or for their medicine on leaving. The patients enter the clinic waiting room directly and obtain their tickets there. This arrangement tends to avoid extraneous influences that would affect the findings at the time of the physical examination. The patients rested and at ease are able more intelligently to explain their condition and better able to understand and remember the advice and instructions given.

It would be regrettable if the effect of this measure, detailed tho it be, is not appreciated, and if the rigidness of dispensary attitude make it compulsory for cases known to have heart disease to undergo the physical strain of standing in line, so

blindly contradictory to the medical advice given in the clinic.

The question of the dispensary fee is beyond the province of this report. We may say, however, that many of the cases expressed it as a hardship for them and would have to forego clinic care if the payment were unavoidable. Patients with heart disease are frequently compelled to maintain an economic struggle with healthy fellow-men and any added drain is more or less of an adverse factor.

The waiting room of the adult cardiac class is arranged somewhat like a club room. It is large, airy, pleasant and inviting with a round table in the middle. Pamphlets, magazines and newspapers for reading, and checkers and domino games make the long wait for examination less tiresome. Especially is this important for night classes, to which patients come tired after their work, and where they have to remain sometimes until ten or eleven o'clock at night. Upon leaving the clinic, the medicine is given directly to the patient from a moderate supply kept at hand in the examining room.

The whole attitude of the clinic must be personal, interested and beneficent. That this is appreciated by the patients is demonstrated by their earnest cooperation and regular and faithful attendance. This made it possible for one nurse, single-handed to do both clinic and social work.

Upon admission the social record is taken. The complete medical history and physical examination are then recorded. Up to the present time a card system has been used, the cards enclosed in an envelope 6 x 3 inches, convenient for preserving additional data. Subsequent notes are written on blank ruled cards.

Polygraphic tracings and electro-cardio-

graphic records were made in many of the cases and functional studies were made when they were deemed of assistance in determining the diagnosis and treatment.

Numerical Data.—To May 1, 1919, during the 26 months of its existence, 324 patients registered in the adult cardiac clinic. Of these, 100 were discharged as non-cardiacs and 30 died from cardiac and other causes. The ages of the patients attending the clinic, classified January 1st, were as follows:

	Male	Female
From 16 to 20 years.....	19	25
From 21 to 30 years.....	28	38
From 31 to 40 years.....	28	22
From 41 to 50 years.....	19	18
From 51 to 60 years.....	13	8
Over 60 years	8	9
	115	120

In all, 1,436 examinations were made since the establishment of the clinic to January, 1919. The number in each class varied between 10 and 16 at a period. There were classes with as high as 30 patients, but it was felt that adequate attention could not be given to all and the number was consequently reduced.

An important phase of the work was remedying physical defects other than cardiac, and correcting economic difficulties. Efforts were made to learn the family conditions in each case, as cardiac cases cannot be successfully treated if the family conditions are ignored. Up to December 1, 1918, the nurse in charge of the cardiac class had 2,574 office consultations and 2,220 home visits to patients.

Item	Number
Cases registered in 1917	138
Cases registered in 1918	101
Patients who attended clinic during 1918.	235
Visits made by patients to clinic in 1918.	786
Patients in each class during 1918 average	11
Total number of cases registered up to May 1, 1919	324
Discharged as non-cardiacs	100
Died from various causes	30
Cases remaining active May 1, 1919	194

Cases admitted to various hospitals during 1918	38
Of these, to Mount Sinai Hospital.....	17
Cases admitted to Convalescent institu- tions during 1918	29
Of these, to Loeb Home	13
to Burke Foundation	7
to Montefiore Home	6
Cases given private convalescent care during 1918	6
Cases given home convalescent care dur- ing 1918	36

The following numerical data reveal the family conditions; the figures were recorded January 1, 1919:

Item	Number
Total number of members in the families.	558
Members in the families who are wage- earning	152
Children under 16 years of age	293
Number of patients conducting their own business	11
Families partially supported by charity organizations	20

Social Case Reports.—What the social work availed toward improving home conditions can be illustrated by a few cases. The following notes, laconically recorded, will serve as illustrations.

Case I.—Cardiac patient, husband and six children. January, 1917, three small rooms, two of which were dark, one closed for the winter to conserve heat. All slept in one room, three beds, old and unclean bedclothes, and articles of clothing used as covers. Oldest boy, 15 years, who had graduated from elementary school before 14, serving an 18 months term in the House of Refuge. Girl 13, epileptic had spent three years in Craig Colony. All the other children had decayed teeth; one had to have 10 drawn.

For 7 years the family had been under the constant care of a large charity organization. Having before them the general problem of relief, this institution, like many others, overlooked the individual needs of this family.

The family conditions were discovered thru home visits. The woman was sent to a convalescent home. The children, after their teeth were treated, were sent to a home. The rooms were cleaned, bedding supplied, coal furnished. To the candy stand which the charity organization had initiated, fruit and newspapers were added,

increasing the income. Now the family lives in five rooms with bath and hot water. The cardiac patient, under the care of the cardiac clinic, is able to assist in management of the stand. The family is self-supporting, has refunded all money advanced to them by the cardiac class and the charity organization.

Case II.—Cardiac patient, wife and three children; former earning 25 dollars weekly as cloak-operator. Eight months of illness consumed all savings and exhausted the assistance of friends and relatives. After improving, could not return to same occupation nor find other suitable work; became despondent. Thru home visits the condition was discovered. Patient sent to a country place by the cardiac class, and on his return temporary relief was given. With the assistance of his verein, a bakery shop was bought for the patient. Family is now self-supporting and has repaid all money advanced.

Medical Analysis.—The following table presents at a glance the numerical data arranged according to diagnosis. It need not be emphasized that the medical care of the cardiac patients was given intensive thought.

Diagnosis	Active cases	Discharged
Mitral regurgitation	37	12
Mitral stenosis	39	4
Double mitral lesion	14	4
Auricular fibrillation	19	6
Aortic lesions	11	4
Combined aortic and mitral . .	17	2
Aneurysm and dilatation of the aorta	7	0
Cardionepritic	11	2
Myocarditis	13	2
Heart-block	3	0
Extrasystoles	2	0
Paroxysmal auricular fibrilla- tion	2	0
Paroxysmal tachycardia	1	0
Auricular flutter	1	1
Thyrotoxic heart	7	2
Congenital heart lesions	1	0
Total	185	39

The intervals between visits varied from one to four weeks. The following rules were generally regarded:

1. Compensated valvular lesions returned to the clinic monthly.

2. Patients under digitalis medication returned weekly or even biweekly when necessary.

3. Patients with auricular fibrillation returned at first weekly; as they became educated to control their medication, less often.

4. Cases of myocarditis returned weekly and later less often.

5. Cases of aortitis, atheroma, hypertension and thyrotoxic cases returned monthly.

6. Special cases under special observation returned as often as required.

We endeavored to impress upon the patients the importance of comparative rest as the essential factor in the treatment. We reiterated detailed instructions as to the exact mode of living, and helped them to direct and plan their activities. We advised them of the only relative value of medicines. The proper conduct of their life, the relative amount of rest necessary, the suitable adjustment to economic and industrial conditions demanded special education and guidance. The patients could not acquire this from a few minutes of advice in the clinic, no matter how definite and emphatic that may have been.

For the most advanced cardiac cases, permanent care in a "home" proved to be the best solution. But as beds are not usually available, it is difficult to find means of adequate care.

For the early and milder cases of heart disease, we endeavored to develop the educational and supervisory methods of care in the clinic. All patients with heart disease should receive an education in the subject of their malady. This can be achieved in the clinic in a few sessions. During this time an estimate is made of the patient's capacity for work, and he may be shown

how to adapt his life to his capabilities. This may also be done during a sojourn in the hospital for a period of two to four weeks. We have seen patients who paid no attention to their malady, which they knew to exist, after a period of class study or after a stay in the hospital lead a life altogether different from before. They recognized the importance of prolonged rest, were able to estimate their capacity for work, and learned the details in the management of their disease. We have found this form of education to be an excellent means for bettering and prolonging the lives of these patients. The supervision of patients with heart disease at their homes by a physician and nurse associated with the special clinic has proven of great value.

The Problem of a Livelihood for the Cardiac.—Under concurrent favorable circumstances, cardiac cases may remain *in statu quo* for years, and enjoy life in comparative comfort and independence. In our endeavors to benefit them, however, we often met with antagonistic home conditions. Most of the patients were at work at occupations unsuited to their state of health, with little prospect of convenient change. Women with large families could not, with ease, take complete rest in bed for several hours each day; nor could they manage the other details of their day's activities with an intelligent view to the state of their heart disease.

The transfer of employees from one occupation to another more fitting their state of health results in an adaptation of the individual to his work. Occupations which require much training are not generally suitable, because of the low wages during the period of training. For cardiac patients there could be made available certain non-

strenuous occupations, such as cashiers, ticket-sellers, "ticket-choppers," etc.

It may be a correct idea to attempt to segregate cardiac cases into an industrial sphere of their own. Occupation for cardiacs thus becomes the main problem in social relief. For school children, vocational guidance is imperative, with the early selection of suitable occupations, thru co-operation of school nurses and others with the special cardiac clinics. For adults, a few limited alternatives exist. *First*, adopting a phase of his special occupation to the physical capacity of the patient. *Second*, changing the occupation. *Third*, teaching a new occupation. The success of the latter depends upon the proper selection of the cases, freedom from anxiety, hygienic surroundings, rest when needed, and the chance of a work in which manual and mental dexterity are substituted for physical exertion. *Fourth*, establishing of the handicapped in a small self-supporting business.

PERSONAL REMINISCENCES OF THE FOUNDER OF THE AMERI- CAN MEDICAL ASSOCIATION.¹

BY

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The preacher is supposed to commence his sermon by the reading of a text. The following is most fitting in emphasizing the life work of Dr. N. S. Davis of Chicago.

"And his works do follow him."

—(Rev. 14-13).

Few here present knew him personally. A long and intimate association was my

¹ Address at the 50th Anniversary Banquet of the Association of American Medical Editors, June 10, 1919.

good fortune, all the more because he was generally considered a reserved character; often dictatorial and dogmatic. By the medical profession of America he is chiefly remembered as founder of the American Medical Association. I won his friendship by my early and continued loyalty to the Association. Its history is instructive. For years succeeding its beginning, attendance was small, with seemingly little of common interest and less enthusiasm. The profession as a whole lacked a bond of union. The various medical schools and a very few medical journals were centers of cooperation; even the state societies were slightly concerned beyond their own bounds. I first saw Dr. Davis at the Boston meeting of the American Medical Association in 1863. The War of the Rebellion was at its height and the number in attendance small. Military surgery was naturally the prominent topic.

In 1860, the country was lulled into contentment by a widespread belief that a real war, threatening the dismemberment of States could never be seriously contemplated; that the heated discussions in Washington were due to violent political disagreement. The recent day parallel is found in the slogan—"He kept us out of war" which re-elected Mr. Wilson. A great national conflict was held to be impossible. Dr. Davis was a relative of Jefferson Davis. The firing upon Fort Sumter roused the masses of the North as from a horrid nightmare dream. Dr. Davis was an active Democrat, but an advocate of peace; a warrant for his arrest as disloyal had been issued. Excitement ran high in Chicago. A mass meeting for recruitment was called; the immense hall was crowded to overflowing.

The following anecdote is illustrative of

Dr. Davis. Feeling had arisen to fever heat. Dr. Davis was seen elbowing his way thru the crowd to the front of the platform where he demanded a hearing:—"Fellow Citizens—I am a Jeffersonian Democrat and I glory in the name. But the time for peace has now passed. He who dares to fire on that flag (pointing to our National banner) is my enemy. In further evidence of my loyalty," and here a hush like a spell fell upon the assembly, "since I cannot myself enter the army immediately, I will gladly care for the families of enlisted men without cost. I am comparatively poor in this world's goods, but I own unencumbered this corner lot (locating the same) and will give a title deed to the man who first signs the enlistment roll tonight."

A scene of wild disorder ensued—the rush to the recruiting stand was beyond description and the doctor was cheered to the echo.

He was then the foremost citizen of Chicago, a professor of medicine in the medical school, and with Surgeon-General Hammond, U. S. A. and Dr. Henry I. Bowditch of Boston, was a leader in the new study of sanitary science. He inaugurated the movement for tunneling four miles under Lake Michigan to give an unlimited supply of pure water to the thirsty city.

The project for an enlarged cooperative association for medical teaching received his prompt attention. He established a graded school of medicine for the purpose of elevating standards of attainment. Upon my return from the University of Berlin in 1870 I was tendered a professorship.

The state of medical journalism of America as well as the inefficiency of many medical schools, called forth Dr. Davis' severe criticism. His unsparing public

denunciation of their narrow local and personal policies made him unpopular with many editors and teachers. Out of this confusion grew the idea of a weekly journal, to be established by the American Medical Association. The plan was often discussed between us—how to secure the unified assistance of medical editors in general. The final outcome was a meeting of American Medical Editors in Chicago. The loss to this body of its early records is a serious one and my statement is from memory.

We had thirteen editors in attendance holding our sessions in the hotel parlor. Dr. Davis was elected president. I was honored with the secretaryship, being at the time Associate Editor of the *Annals of Surgery*.

A brief constitution and by-laws were adopted. From that date annual meetings have taken place in connection with those of the American Medical Association. In the course of time I became president. The good work has progressed steadily in a spirit of mutual helpfulness. The more recent exponents of its activities are present with us tonight, chief among whom is our able Secretary, Dr. McDonald, who during his long period of service has faithfully adhered to the finest traditions of our notable beginning and without whom the especial interest of these meetings would be wanting.

The *Journal of the American Medical Association* was the logical result of these efforts. Dr. Davis acted as Editor-in-Chief without compensation.

Already in failing health, I earnestly protested against his acceptance of the task, still a teacher with a daily clinic perhaps the largest in Chicago, he was not to be moved from his fixed purpose. "The *Journal* must succeed. I shall give it unwearied service

as my last and best contribution to our profession."

The journal of the British Medical Association—the *British Medical Journal*—with a large subscription list in America, totaling a circulation in both countries, of about fifteen thousand copies, was the only great national publication. Our ambition was a circulation of ten thousand copies, which meant a safe financial basis. Today the weekly issue is about seventy thousand, and this is owing in large part to the cooperative labors of this Association of Medical Editors.

Success is inscribed in bold letters upon our standards for the uplift of the profession. Our past history is phenomenal. It has held a welding power of nationwide goodfellowship. It has greatly advanced to the world championship the medical attainment of the present.

To willing and competent hands, the cherished memory of half a century of united effort is committed. Cemented by enduring friendships, the field still offers new vistas not less inviting to an army of co-workers for the common good. It has been my privilege to attend every meeting of this Association, except one, since its organization. This is true also of my associate interest and attendance upon the meetings of the American Medical Association. I believe I hold the record. The service has been a labor of love.

Surgery has been practically re-written. Medicine has likewise won noble victories. If the medical teachings of the present day were universally adopted, sickness would be lessened by one-half, the productive capacity of the race doubled, and life lengthened by at least one-third. A heritage of a century now belongs to the well born.

Our profession owes the world the solemn duty of showing how this heritage may be economically utilized. Upon, my brethren of the Association of American Medical Editors, this responsibility is laid in a special sense. The trust is in safe hands. Magnify it into a glorious success.

180 Commonwealth Avenue..

TROPICAL ULCERS.

BY

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Cairo, Egypt.

I think that this is the most appropriate term by which to designate a class of ulcers very frequently met with in the Sudan and altogether different in their etiology, course, etc., from the Oriental sore, Leishmaniasis.

The following is a resumé of statistics taken during five years of work on this subject in different localities in the Anglo-Egyptian Sudan.

Etiology.—In nearly 99% of the cases reporting for treatment the patients stated that the ulcers were initiated with an injury such as an abrasion or wound caused by a stone, kick, etc., hence the site of greatest predilection has been the lower extremities. They are very much more common in male than in female patients, and almost always occur between the ages of four and twenty years. They usually appear in more or less epidemic form during the cultivation and crop seasons.

Foreigners are equally subject to attacks of the same, but on a very much smaller scale, effecting by preference those staying for long periods without changing the African climate. The ulcers in this class, tho equally refractory to treatment, rarely

if ever reach the enormous size they usually do in natives.

The present article being compiled from personal experience and in places where accurate bacteriologic and microscopic work was altogether difficult, one can hardly dwell upon this side of their etiology; nevertheless I would like to state in passing, that the microscopic examination of a specimen film of the discharge revealed the presence of pus cells, staphylococci and streptococci.

Course.—The ulcers, as stated, nearly always owe their origin to an injury. As hardly any attention is usually paid towards the cleanliness of the ensuing wound, or otherwise, having become inoculated with a specific germ hitherto unknown, the wound instead of healing, begins to enlarge slowly but steadily so that within the first 8 to 10 days a small ulcer is already in existence with its membrane of unhealthy granulating tissue and an unusually profuse discharge. The ulcer once established continues going on for years, if left untreated, reaching large dimensions, there being no tendency towards spontaneous recovery.

Characteristics.—The ulcers are usually round or oval but may very rarely be, irregularly shaped. The margin is sharply defined and the unhealthy granulating membrane covering the base, fairly thick, strongly adherent and often presenting small nodular elevations.

The color, when the discharge is well wiped off, is pinkish red. The discharge is purulent in character, yellowish green in color, seldom sanguinous and very profuse. The ulcers spread superficially, never extending beyond the subcutaneous tissue, nor exposing any of the deeper structures.

Treatment.—A daily hot bath was regularly given as a routine, to all patients,

medicated, with either tinct. of Iod. or liq. carb. deterg.

The following were the lines of treatment that were most commonly used.

1. Boric Acid. The ulcers were well packed with pulv. boric acid, and covered with a dry dressing. This was, however, soon abandoned as it did not prove to be very successful.

2. Carbolic Acid. Touching with the pure acid on alternate days neutralizing the surplus with rectified spirit, was attended with better success than the former.

3. Touching with silver nitrate and copper sulphate sticks on alternate days proved to be successful in not a few cases.

4. Tinct. of Benzoin Comp. A piece of lint exactly the size of the ulcer was soaked in the tinct., applied to the ulcer and covered with oiled silk and a dry dressing. Care should be taken in applying this, as the tinct. should not be allowed to come in contact with the healthy skin.

5. Lotio Rubra. Applied in the same way and under the same precautions as the above; only that the zinc sulphate solution used should be 5%, *in lieu* of the 1% in vogue in the B. P. This proved to be the best line of treatment where the patients refused to submit to more radical measures and where the ulcers were of small dimensions. In the larger ones, however, this should be continued until the appearance of the healthy granulating tissue; skin grafting should then be performed to hasten the cure.

6. Pacquelins' Thermo-cautery. The ulcers were cauterized, under local anesthesia until the appearance of the healthy granulations and then followed by skin grafting when necessary.

7. Curettage. This was my method, *par excellence*, being attended with better results in a very much shorter time than in any of the others.

It was performed under local anesthesia and with an ordinary sinus curette. Care should be taken to remove all the unhealthy granulations, which often strip off in one piece.

The small ulcers should be immediately cauterized with pure carbolic or liq. Iodi B. P. 1898. In the larger ones, grafting should be performed 24-48 hours later. Complete cure was obtained in the worst cases, under this line of treatment, in 4-6 weeks.

8. I would like to mention lastly a method that was rarely performed but which in selected cases proved to be very satisfactory (small ulcers surrounded with loose healthy tissue). The unhealthy membrane was excised under local anesthesia with a scalpel and the margins coated with strong silken sutures. A cure was obtained in 8 days where the patients were given complete rest, thus allowing the wound to heal by primary intention.



(From our Regular Correspondent.)

THE POLLUTION OF THE ATMOSPHERE.

If there is one thing in preventive medicine, and one thing in connection with widespread disease, which is talked about more generally than another and understood less, it is pollution of the atmosphere. Some people, who are academically entitled to their opinions, speak as tho the presence in the atmosphere of anything in addition to its normal oxygen, nitrogen and gaseous traces rendered its respiration injurious, the origin of disease easy to comprehend, and the chances of recovery very poor. Others say that so long as air is kept stirring it can hardly be made too foul by the presence of human emanations, and upon this view many have founded their discounting of all atmospheric pollution as a serious source of physical disabilities.

As is often the case when direct differences of opinion arise on medical questions, neither side is right and neither side is wrong; for while too much attention has certainly been paid to the mere amount of carbonic acid present in the air of crowded buildings, not enough has been paid to the damage caused by solid matter present in the atmospheres of our large cities. I do not know what steps you may take in American cities to ascertain the amount of impurity of this sort present in your great industrial towns, as a prelude to removing the evil; but I venture to call your attention to the very interesting report which has just been issued by the British Meteorological Office.

An advisory committee on Atmospheric Pollution was set up some three years ago by the Meteorological Office, and altho its activities have been seriously interfered with by the war, it has made three valuable reports, and the fourth dealing with the year 1917-1918 has now appeared. It is to some extent a summary of monthly reports which have been published in scientific journals, but it contains some valuable comments upon the evidence they have amassed, and also a detailed account of some

work done by Dr. Owens, F. R. S., the guiding spirit of the committee, directed towards the best method of measuring continuously the suspended impurities of air, instead of depending for information upon the amount of deposit occurring on certain surfaces at certain intervals.

The report is based upon observations taken at 24 stations selected as being in widely different environments. Of these stations seven

worth the unsheltered gauge is in the vicinity of one of the main southern railway routes between the capital and the coast, and is therefore liable to smoke and soot contamination from the engines, when the wind is in the favoring direction.

The following table* shows the total solids deposited monthly at all the stations in metric tons per square millimeter.

Station.	1917.												1918.	Mean monthly deposit for year
	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.		
Leicester	17.21	16.70	16.61	9.16	19.76	10.82	13.66	7.78	8.23	15.96	25.74	5.24	13.91	
London:—														
Meteorological Office	12.96	8.09	9.38	11.51	16.20	6.18	12.53	6.97	11.10	17.67	9.61	10.56	11.07	
*Embankment Gardens	16.58	37.70	11.72	28.26	20.59	—	34.66	24.25	—	19.73	26.49	21.89	24.19	
*Finsbury Park	15.70	6.61	29.82	15.11	21.75	10.45	14.05	10.81	16.79	14.16	17.68	5.01	14.83	
*Ravenscourt Park	23.37	15.03	16.64	17.36	16.87	14.10	12.49	7.53	4.75	11.79	8.85	1.72	12.55	
*Southwark Park	11.76	36.33	11.55	13.56	16.86	12.11	35.78	20.28	—	10.22	15.12	6.77	17.33	
Wandsworth Common	7.23	4.84	2.47	10.00	3.73	3.96	2.81	—	—	2.61	2.16	14.08	5.40	
Golden Lane	9.09	14.64	11.85	18.13	15.87	9.46	17.62	9.59	12.62	16.27	9.59	10.60	12.95	
Malvern	2.60	5.15	2.55	2.96	3.94	1.34	1.52	1.75	3.34	2.90	1.67	1.54	2.61	
Manchester:—														
Queen's Park	10.44	13.30	15.70	6.20	14.30	11.50	14.40	10.90	4.20	4.90	5.70	5.01	9.72	
School of Technology	12.72	15.60	11.40	14.50	21.80	18.20	21.00	13.20	5.20	11.40	10.60	12.50	14.01	
Newcastle-on-Tyne	44.28	19.64	20.07	19.81	28.50	21.93	17.70	15.10	20.80	14.52	11.19	16.11	20.81	
Rochdale	—	34.60	34.60	34.63	34.63	34.63	35.69	35.69	35.69	—	33.95	33.95	34.81	
St. Helen's	24.50	17.53	14.02	16.84	32.13	13.94	—	22.60	15.16	22.68	25.11	19.31	20.40	
Coatbridge	10.64	19.06	16.55	15.78	18.61	14.29	20.04	—	14.52	18.39	17.74	13.69	16.35	
Glasgow:—														
Alexandra Park	7.69	20.18	13.54	9.72	12.40	10.60	19.52	13.03	11.82	17.84	11.56	—	13.56	
Bellahouston Park	11.86	19.22	19.98	10.63	10.04	7.55	14.43	11.79	—	14.91	12.86	9.94	13.00	
Blythswood Square	13.75	23.26	31.30	10.90	15.64	11.34	18.30	15.67	13.14	—	14.82	11.24	16.17	
Botanic Gardens	11.56	21.20	16.25	11.46	11.97	10.58	—	16.41	14.41	—	15.17	13.34	14.34	
Richmond Park	7.55	23.82	14.21	10.98	15.39	12.43	17.65	16.83	13.57	29.33	13.28	12.15	15.60	
Ruchill Park	13.43	16.53	18.11	8.44	17.60	9.76	16.61	11.44	14.11	—	12.12	21.04	14.52	
South Side Park	4.89	13.20	15.20	10.50	9.96	10.26	12.13	7.53	10.55	19.76	12.97	15.53	11.88	
Tollcross Park	—	16.58	27.82	10.79	—	7.74	25.49	18.28	14.91	—	13.85	10.17	16.14	
Victoria Park	5.69	17.95	15.40	9.04	9.00	8.77	—	14.35	—	17.78	17.11	11.88	13.13	

*The above table is supplied us thru the courtesy of the London *Lancet*.

are in London, and include a typically open and thinly inhabited residential area like Wandsworth Common, and a crowded factory district like Southwark; nine are in Glasgow, and are chosen to represent the best and worst of the most busy and crowded industrial center of the Kingdom; two are in Manchester; and the others are at such foci of industry as Newcastle, Rochdale, St. Helen's and Coatbridge; at Leicester a good example of a large country town in open fields, but providing work for a big factory population; and Malvern a lovely rural locality on the ridge of one of the highest chains of hills in the middle-west of England. At these stations, during the year in question, the total solids deposited monthly were calculated in metric tons per square millimeter, and the peculiarities of the exact position of collection are noted below the figures. For example, in Southwark the gauge is situated in the one open spot available, a public park, and is not exposed to any dirt arising from traffic, while at Wands-

The stations at which an asterisk is affixed are those where the results may have been affected by difficulties of collection elsewhere attended to. The low, mean monthly deposit at Malvern is representative of uncontaminated country air.

The mean monthly deposits for each station are set out in separate tables for summer—namely the months of April to September inclusive, and winter—namely the three remaining months of 1917 and the first three months of 1918 and these results are compared with the results obtained from the gauges during the preceding 12 months analogously subdivided. The reasons are also set out why the deposits have increased after the interval of the year at some stations and decreased at others, and the net conclusion drawn is that there is some indication of improvement of the atmosphere during the winter months but that the degree of pollution during the summer months is on the increase. We are definitely warned, how-

ever, that the returns for 1917-1918 must be regarded as somewhat inconclusive, as the shortage of bottles, due to war conditions, made it necessary to use less satisfactory methods of collection, such as open carboys placed under outlets from the gauge vessels, a method of collection calling far increased attention at a time when intelligent inspection was not always easy to obtain. Yet the broad accuracy of the results is seen by the fact that at the Wandsworth station the deposits decreased during the summer months of the year, corresponding with the fact that in the summer of 1917 railway traffic was greatly curtailed, private traveling being enormously restricted.

Comparing the winter months for the two years, an increase was found in 1917-1918 in total solids, tar, insoluble ash, and sulphates, while there is a reduction in the deposit of carbonaceous matter other than tar, chlorine, and in ammonia. The lesser consumption of domestic fuel during the year explains certain of these phenomena, and again brings a highly technical piece of laboratory work into connection with the affairs of every-day life.

Dr. Owens' method for measuring continuously the suspended impurity of the air greatly advances this branch of the work. By elaborate experimentation with special filters he arrived at a filter which will operate automatically, giving records at short intervals over a period of 12 or 24 hours, on a paper clock. The result indicates what may be regarded as happening to respiratory tissue from polluted air, and at once the enormous possibilities for preventive and clinical medicine, latent in research of this character, become apparent. All urban communities should clamor for coal smoke abatement.



Under the Editorial Direction of Albert C.
Geyser, M. D., New York.

GENERAL CONSIDERATIONS OF THE THERAPEUTIC EFFECT OF HYPEREMIA.

Unconsciously the average physician associates two qualities, inflammation and pain with hyperemia. Because hyperemia is under normal circumstances one of the principal factors of an inflammation and as an inflammatory condition usually has pain as an associate, it was thought that the hyperemia or the inflammation was the cause of the pain.

This opinion is so firmly rooted in the minds of medical men, that to speak of an

inflammatory process suggests the presence of pain and this suggestion is borne out by actual facts.

When we really analyze the process of an inflammation, we are led to inquire, what useful function can we find that pain performs? We can and do account for all the various component parts of an inflammatory process. We know just what particular function each one is by nature expected to perform, but if we stop to inquire what possible good could come from a painful condition in an inflammatory process, we would be obliged to admit its utter inability to serve any purpose at all.

Pain, therefore, is not the result of or in any way connected with inflammation *per se*.

It is, nevertheless, true that this pain may and frequently is intensified by the hyperemia. Closer observation, however, will show that this increase of pain is only of short duration after the inflammation or hyperemia has adequately manifested itself.

In fact we are all agreed that inflammation is nature's reparative process. That being so, the pain which was present as one of the causative factors of the inflammation, must of necessity sooner or later yield to this reparative influence and become mitigated and finally lost.

We are all familiar with the terrific pain of dental caries, which during the acute stage lasts from one to two hours to as many days. As soon as the hyperemia and its consequent swelling have taken place, practically all of the pain vanishes. The patient suffers from the immensely swollen jaw, which is very tender to the touch, but otherwise is free from pain.

A patient sustains a fracture of one of the long bones. There is at once more or less pain, yet as soon as the reparative process or reaction has set in and swelling has taken place there is a complete absence of all previous pain, assuming all parts to be in apposition.

From all this it seems that pain is not the result of hyperemia. Still this question of pain cannot be so easily disposed of.

Whenever we have a limb suffering from a toxemia, the result of a local infection, every surgeon knows from actual practical experience that when such a limb is raised so as to favor the return circulation, that the pain at once ceases.

When this same limb is allowed to hang suspended, the pain returns with all its vigor.

To the casual observer this accumulation of the venous blood, the consequent engorgement and congestion are the direct causes of the pain.

All this is an error pure and simple. If that same limb is gradually lowered and has become used to the amount of congestion, now if active hyperemia is gradually added to it, not only will the pain cease, but the whole reparative process be hastened.

The pain in all these cases is due to an interference with the circulation at the point of the original injury. As soon as the circulation has been reestablished there, pain will cease. This reestablishment of the circulation in the injured part can only occur as the result of increased local circulation or as the result of hyperemia.

The hyperemia is not the cause of the pain, but the result of pain.

In this connection it would be well to remember that stasis must never be mistaken for hyperemia.

Strange as it may seem, while this old theory of pain being due to hyperemia still lurks in the mind of the physician, yet that same physician knows only too well the pain-relieving power of hyperemia.

A severe otitis media, neuralgia, myalgia or even ostalgia are always benefited by some agent capable of setting up some counter-irritation which must result in a hyperemia.

The hot water bag, the dry heated air, hot compresses all have been used by the physician and patient alike and seldom or never with disappointment.

When a joint, suffering from chronic rheumatism, is placed in a superheated air apparatus, in less than one hour all pain is gone.

We have caused here an increase in the arterial circulation. In spite of the fact that this same joint was red, tender and swollen, after one hour of active hyperemia, with perhaps an increase in the swelling and certainly an increase in the local temperature of the part, the pain is entirely eliminated. At the same time while the superheated dry air almost at once relieves all the pain, it does not cure the disease.

This, like many other toxic manifestations, requires constitutional elimination for

its removal. While the superheated dry air gives the patient relief, other measures must be instituted. While the effect of hyperemia is very marked in chronic arthritis, still more effective results are obtained by the passive hyperemia in gonorrhreal rheumatism. If a joint suffers pain as the result of gonococcic invasion, the application of the rubber bandage above the joint will result in almost complete relief of pain in one or two hours after its application.

In the use of the passive hyperemia care must be exercised in its application. It must never be uncomfortable and above all, it must be applied for a great many hours at a time. The more acute the lesion, the longer must the passive hyperemia be maintained.

The more chronic the lesion the shorter the time of application. All chronic lesions are associated with more or less stasis, care must therefore be taken not to increase this but rather to mitigate the same.

In gonorrhreal joints twenty to twenty-two hours out of each twenty-four are none too much. A superficial neuralgia is quickly relieved of its pain by the application of the vacuum cups. These cups simply divert the bloodstream into the path of lesser resistance and so cause a local hyperemia with a consequent lessening of the pain.

In the application of a hot fomentation to an impending abscess not only is the pain almost at once relieved, but frequently it happens that the whole process retrogrades or at least hastens the suppurative stage and causes elimination from the body of the toxic material.

Conclusions.—From such observed facts we must come to the only logical conclusion that pain is not caused by, but on the contrary, it is positively relieved by active as well as by passive hyperemia.

We have seen how we accounted for the statement that hyperemia could not be the pain-producing factor, now we must equally well prove that hyperemia is a pain-relieving agent.

Schleich has shown, that when any tissue is properly infiltrated with certain substances, the pain is thereby diminished. He was able to produce an equally perfect local anesthesia with only one-half of one per cent. solution of cocaine, while others with a less perfect tissue infiltration were

obliged to use the usual four per cent. solution.

This same method of tissue infiltration with a very small amount of cocaine is made use of by Bodine in nearly all of his major operations without a general anesthetic.

It is the method of infiltration and not the drug, for many surgeons have tried to imitate Dr. Bodine, even with much larger percentages of the drug, but few have ever enjoyed his success.

It is well to note here that whenever we have edema we seldom have acute pain.

With a hyperemia we certainly cause by the outpouring of the serum a complete cell or tissue infiltration, stimulating a temporary edema, which may be an important factor in the pain-relieving qualities of a hyperemia, especially of the passive variety.

As previously stated the pain is the result of the original injury.

Assuming the original injury to be the result of a toxemia, which may be either bacterial or chemical, have we not every reason to expect that the sooner such poisons are removed from the body, the sooner will the pain disappear? This quickened removal can best be brought about by an active hyperemia which causes an increased local circulation in the affected parts.

Again, by the passive hyperemia and a retarding of the return circulation with a consequent dilution of the toxic material, should we not find an easy explanation of the pain-relieving qualities of such a hyperemia.

It has been observed by some that the relief from pain in joint diseases was due to an accumulation of fluids within the joint cavity and so the articular surfaces were forced apart, thereby relieving the intra-articular pain.

I am of the opinion that this is a fallacy, since we have abundant proof of the pain-relieving power of an active or passive hyperemia in locations where there are no joint surfaces to separate, as in myalgia, neuralgia and abscess formations.

If we desire a really scientific explanation of the pain-relieving power of a hyperemia, let us follow Coley who in 1905 made some observations by diluting pus with edema fluid, taken from a diseased arm and the same pus diluted with artificially caused

edema of the sound arm.

When rabbits were infected with edema and pus of the sound arm they invariably died as the result of toxemia, but when injected with pus diluted with the fluid from the diseased arm, while they sickened, yet none died.

If the accompanying pain then is due to toxines from the germs, we have here a clear demonstration of the antibody forming power of the serum, when in contact with diseased tissue.

The Therapeutic Effects of Hyperemia.

—Bier in his works has shown that a certain infection gave a clear culture of staphylococci, yet after a few hours of passive hyperemia, the germs entirely disappeared from the lesion.

Infections of all kinds respond almost at once to hyperemia.

This is a well known fact to the natives of the tropics where snake and poisonous insect bites are more common.

As soon as a person is thus bitten, a rather firm bandage is applied to prevent the poison from entering the circulation, as they think, but in reality we see the results of a passive hyperemia practically applied.

We know that the poison cannot be prevented from entering the general circulation, for the circulation within the limb must be and is maintained even after a reasonable constriction.

We have here a practical demonstration of either the effect upon the germs themselves as shown by Bier or the poison diluting and neutralizing power as shown by Coley.

Suppose for a moment that a snake bite, an insect bite or the introduction of a similar poison has taken place, nothing is done and adequate reaction takes place, we have at first a swelling with edema, followed by stasis.

Either the patient lives or dies; if he lives, either the part slowly returns to normal or as is more frequent, a sharp line of demarcation sets in, gangrene supervenes and a natural amputation is the result. Nature prefers to sacrifice the limb and thus save the life.

Is it not highly probable that the natives of warmer climates, when they make use of passive hyperemia in poisoned wounds, after all show some method in their idea of preventing the poison from entering the

general circulation *too rapidly* and by forcing the toxines to remain a longer time in direct contact with the germs or poisons destroy or neutralize the poison, thereby acting in a similar manner to Koch's tuberculin.

Everything brings with itself the means for its own destruction.

Again, the slowed blood stream may irritate the surrounding tissue to new tissue formation and so lead to the encapsulation of the germs much as nature does in encapsulating T. B. germs within the lung tissue.

One of the results of a passive hyperemia is the increase of the percentage of CO₂ in this delayed circulation; an increase of CO₂ is inimical to all germ life.

Not only is the germicidal power of the blood thereby increased, but in the presence of an increase of CO₂ the red corpuscles swell up and enlarge by absorbing the watery element of the plasma making it more concentrated and more powerful in all its manifestations.

The antibacterial power of the blood depends to a large extent upon its alkalinity.

The greater the CO₂ percentage, the greater the alkaline products of the blood.

Behring has shown that tuberculosis is very rare among lime workers. This he thinks is due to the great percentage of alkalinity within the blood as the result of the inhalation of the lime-laden atmosphere.

We know that the edema fluid from a given patient possesses greater bacterial power than the simple blood serum from the same patient.

Usually the serum is stronger in these qualities than the lymph.

The bacteria are mostly located within the lymph spaces, or just exactly where the greatest amount of edema takes place.

In this way the good effect of a passive hyperemia may be explained.

The theory has been advanced that perhaps the serum, which flows from the wounds after the application of passive hyperemia, might be accountable for the rapid healing effect; when we take into consideration the fact that we have most of our good effects where we have no open wounds, it must become apparent that such a bathing of the wound with serum is merely an incident and really not at all necessary to bring about the healing effects.

All the theories brought forward so far may be true, but they all have a rather narrow view of the healing by inflammation.

Inflammation.—As has been pointed out over and over again, the process of inflammation is a complicated one and no one element plays a greater part than another.

On the contrary the reaction by the cells both fixed and wandering, the increased blood supply, the fluid as well as the corpuscular element of the blood, the chemotaxis, the formation of antibodies and alexines, the absorptive power of the blood, all these contribute to the good effect of a hyperemia.

It is unfortunate that the idea that inflammation is a pathologic state is so firmly rooted in the minds of so many medical men.

Inflammation and each one of its component parts is a natural process of reaction on the part of the uninjured cells.

We might well say, as long as there is inflammation there is hope.

Hyperemia, no matter how caused, is one of the elements of an inflammatory process.

Active hyperemia or an active increase in arterial blood in any local area, is indicated in all chronic conditions where absorption is the principal effect desired in such conditions as persist after a partial recovery from some acute injury, such as swellings, stiffness, edema, loss of function and pain.

Generally speaking *active* hyperemia should be made use of in chronic, non-bacterial but toxic conditions.

Passive hyperemia, or the increase of blood by interference with the venous or return circulation, is indicated in such conditions where it is desirable that the blood stream should remain in contact for a greater length of time than normal.

It is therefore indicated in all acute conditions, especially in the results of trauma or bacterial invasion.

The longer the blood stream remains in contact under such circumstances with the diseased or injured tissue, the greater is the counteracting influence.

Let me remind you of the dangers in confounding a therapeutically slowed blood stream with stasis.

After all, when we assist nature, or try to do that which nature would have done, do we see the real benefit of the slowing

and the remaining in longer contact of the blood stream with the injured tissue.

Absorption.—Absorption is one of the most prominent effects of a hyperemia.

When rapid absorption is desired the active hyperemia is made use of while slower or retarded absorption follows the passive hyperemia.

Nearly 90 per cent. of all absorption takes place thru the lymphatic system.

It was formerly thought and many text books still teach that all or nearly all absorption takes place by the way of the lymphatics.

A few tests will throw some light upon this question.

There is no tissue in the body where lymphatics are more abundant than in the peritoneum.

Haidenhain and Orlow injected into the peritoneal cavity soluble salts. These solutions rapidly disappeared from the cavity and were demonstrated in the urine, but no trace of the salts was found in the thoracic duct. It must have been absorbed by the capillaries and not by the lymphatics.

Starling made similar tests, always finding the salts in the urine long before they could be demonstrated in the lymph. His conclusions were, that they were primarily absorbed by the capillaries, later thru the general circulation, and appeared in the lymphatic system by their presence in the blood.

Hamburger ligated the thoracic duct, then injected the soluble salts; the absorption took place with the usual rapidity, but no distention of the lymphatic system manifested itself, showing that absorption had taken place thru the capillaries.

J. Munk ligated the main lymphatic vessels in the neck of animals, then severed these vessels distally to the ligation, so that all the flow of lymph was outward and no entrance into the system could take place.

Injections of strychnine were made into the scalp. The ligated as well as the non-ligated animals died about the same time and in a similar manner.

Upon testing the flowing lymph no strychnine could be demonstrated, showing that absorption did not take place by the lymphatics, but by the way of the capillaries.

Klapp injected a solution of sugar of milk into the peritoneal cavity.

Milk sugar was used because of all substances milk sugar is the easiest to trace.

In this experiment, both the thoracic and the lymphatic were ligated. The sugar very promptly appeared in the urine, but not a trace of sugar was found in the lymph duct.

These tests leave no room for doubt; they establish for a fact that all watery or soluble substances are absorbed by the capillaries and not by the lymphatics.

These tests do not, however, negative the probability that cancer cells and other small solid particles are taken up and removed by the lymphatics.

These same tests again point out to us the physiologic basis for the therapeutic use of hyperemia.

Where rapid absorption is desired, the capillary system must be filled to its utmost and the circulation of the blood stream increased.

This we accomplish by the means of the active arterial blood increase brought about by the application of dry heat and other similar agents.

If we desire the rapid absorption of drugs into the general system, the area of injection should first be heated, that is the local circulation should be increased by the application of heat, massage or similar measures.

The fluid itself should be at least of normal body temperature.

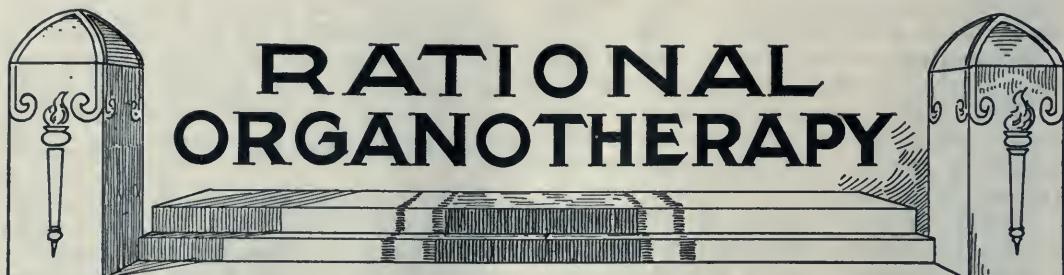
The use of morphine or strychnine or the normal salt solution are made more effective if measures have been instituted for their rapid absorption.

On the other hand a slowed circulation, such as results from a passive hyperemia or the application of cold hinders the rapid absorption by its capillary contraction.

Cocaine solutions for local anesthesia should be cold.

The area to be injected should have a slowed circulation, either by the previous application of cold or by a *constricted bandage* causing a passive hyperemia or by the addition to the solution of adrenalin, causing capillary contraction with the consequent slowing of the blood stream in the local area.

Because the passive hyperemia slows the circulation, it should always be followed by a certain amount of massage to re-establish the normal.



The Paraglandular Organs.—De Castro (*Analés de la Facultad de Medicina*, July-August, 1918) applies this term to the formations which accompany the endocrinous glands in the human body. They are of the same embryonic origin, and attain a certain degree of differentiation in their development, but they are generally regarded and classed as supernumerary accessory glands or aberrant glandular nodules. He is convinced that they represent a regular system, and are not merely anatomic curiosities, morphologic accidents, anomalies or rudimentary organs, as they have hitherto been described. They form what he calls the paraglandular system, an annex to the system of the glands of internal secretion. They represent an organic system in full evolution. This allows the interpretation of a number of contradictory facts which have hitherto baffled observers, and explains many phenomena in the human economy. Each of the endocrinous glands is liable to have its paragland, as also possibly the epiphyses. There are also abdominal paranglia, such as the organs of Zuckerkandl and the cardiac paranglia described in 1906 by Wiesel and Wiesner. The carotid gland is not exceptional but occurs bilateral in nearly every one. Other paranglia with chromaffin tissue are found along the sympathetic. Luschka's coccygeal gland is not chromaffin and hence does not belong to the paraglandular system. He reviews each member of the system in turn, with evidence from comparative anatomy and physiology to sustain his views.

Differentiation of Early Tuberculosis from Hyperthyroidism.—For sometime Goetsch, of the Surgical Clinic of the Johns Hopkins Hospital, has been practicing the subcutaneous injection of 7.5 minims of a

1-1000 solution of adrenalin chloride in patients who present masked symptoms of hyperthyroidism but in whom no positive diagnosis can be made by ordinary methods of examination (*Med. Standard*, July, 1919). If the patient, following the adrenalin injection, reacts with manifest symptoms of hyperthyroidism, Goetsch believes that a positive diagnosis of the condition is justified. At the Trudeau Sanatorium, Nicholson and Goetsch tested 40 patients by this method. Of 18 patients, whose diagnosis was "clinical tuberculosis, questionable," 10 reacted positively and 8 negatively; of 16 with a diagnosis of "clinical tuberculosis, inactive," 9 reacted positively and 7 negatively; and of 6 with active clinical tuberculosis, none reacted positively. The authors conclude that the test is a valuable aid in determining whether the disease from which the patients are suffering is purely a tuberculosis, a tuberculosis complicated by hyperthyroidism, or a pure thyroidism. Hyperthyroidism, whether or not associated with tuberculosis, will give a positive reaction to adrenalin. Tuberculosis, uncomplicated by hyperthyroidism, does not react positively to adrenalin. They feel that in a considerable number of borderline cases presenting symptoms more or less characteristic of both conditions, they can now pick out those suffering with hyperthyroidism.

Corpus Luteum in Nervous Diseases.—Climenko (*Endocrinology*, January-March, 1919) reports some highly interesting studies of the effect of corpus luteum in male neurasthenic cases. It was also administered to patients suffering from organic nervous diseases, such as multiple sclerosis, and also in the early stages of dementia praecox. In all of these the drug was inert, corpus luteum had no effect on the blood

pressure of arteriosclerosis, neither in the male nor in the female. The best results were obtained in young females, poorer results in natural menopause and no results in surgical menopause. The hypodermic preparations did not give as good results as the drug given by mouth. Contrary to the Sajous statement, Climenko found that corpus luteum whenever efficient gives prompt results and large doses need not be employed. He found that 2 grains is as large a dose as one needs to use. Corpus luteum extract acts best when there is every reason to believe that the native corpus luteum is still present. The administration of the extract cannot replace the function of the native corpus luteum in pregnancy and probably also not in menstruation. When menstruation is discontinued by virtue of disturbance in the secretion of another gland, such as the pituitary, corpus luteum will not produce menstruation. Inasmuch as corpus luteum extract when effective produces almost always the same chain of phenomena, Climenko feels that it is reasonable to conclude that (a) corpus luteum has a specific action; (b) the administered extracts probably do not act as the native hormone; and (c) that the extract, in all probability, stimulates the native corpus luteum to function. The two contraindications to the use of corpus luteum are an abnormally low blood pressure and profuse and frequent menstruation.

intravenous injections of adrenalin cause an inhibition in urine flow in both anesthetized and unanesthetized dogs. The inhibition, however, is very brief, as he says that it persists until shortly after the blood-pressure reaction is complete. Altho he did not observe diuresis following, it would be well to base conclusions upon urine flow over longer periods of time, as Addis and his collaborators did. Moreover, the determination of some constituent in the urine, such as urea, per unit of time, is highly important. It may well be that very small amounts of adrenalin such as those absorbed from subcutaneous injection cause diuresis which can be detected over periods several hours in length, while larger doses which are effective immediately produce the opposite result. However, the hypothesis that the adrenal produces some substance which is necessary for the maintenance of normal kidney function needs further confirmation. The work of Marshall and Davis is very suggestive. They found decreased excretory power in the kidneys of adrenalectomized cats. Of course this might be explained by the lowered activity of the tissues in general.

It is possible that other hormones may influence kidney activity. Cow extracted a diuretic substance from the mucous membrane of the alimentary canal, especially the duodenum. He suggests that this substance is carried by water on its way into the blood stream from the gastrointestinal tract. Piticarin has shown that secretin is also diuretic in action.

The question of hormone control of the kidney is extremely important, and altho it appears that we are well along toward its solution, there are many points still unsettled. It is only thru carefully controlled experiments of long duration by both laboratory and clinical workers that it can finally be answered.

Hormone Control of Renal Function.—A writer in *Endocrinology*, October-December, 1918, points out that the possibility of adrenalin control of the kidney has not been investigated so extensively as in the case of pituitary extract. It has been demonstrated that adrenalin produces diuresis, and recently Addis, Barnett and Shevky have shown that this is accompanied by an increase in the urea excreted. These authors think that adrenalin stimulates (secretory) sympathetic termination. Cow on the other hand has not only demonstrated a direct vascular connection between the medulla of the suprarenal and the kidney, but has shown that under certain conditions adrenalin is poured by this path into the kidney, producing a diminution in the flow of the urine. Gunning has also found that

The Thyroid and Fetal Growth.—According to Williams (*International Journal of Orthodontia*, January, 1918) that the thyroid secretion is essential to the development of the fetus is shown by several facts. * * * It is normal for women during pregnancy to develop an enlargement of the thyroid glands, which subsides rapidly

after the child is born. By no means the least important function of the thyroid gland is that of fixing the calcium salts in the body. In order to permit of bone formation in the fetus, the mother is obliged to provide more secretion than under normal circumstances she requires, and the gland consequently hypertrophies. After the birth of the child, the increment being no longer necessary, the gland resumes its usual proportions. *In some women this prolonged call of pregnancy has the effect of unduly exhausting the gland, and they are unable in consequence to suckle the child, for lactation is dependent upon a due supply of thyroid secretion.* Such women generally become obese and lethargic, and remain so for varying periods until the thyroid has had time to recover itself. Judicious thyroid medication will frequently not only enable a mother to suckle her infant, but will materially shorten the period of her postpartum difficulties.

The Relation of the Ovaries to Metabolism.—Recently studies have been made by many observers on the influence of the internal secretion of the ovary on metabolism. The tendency to increase in fat after ovariectomy or the menopause, has been attributed to cessation of the action of the internal secretion of the ovary. Löwy and Richter believe this to be due to diminished oxidation, while Magus and Herz incline to the view that it is due to lessened bodily exercise after castration, the result of influence on the psychic sphere of the individual.

—Rothrock *Journal Lancet.*



An American Physician the First to Fly Across the English Channel.—There are few lines of human endeavor that medical men have not contributed to or helped to promote in one way or another. The field of aviation offers no exception to the

rule and altho it is not generally known, to a physician belongs the honor and credit of having been the first to make a cross-channel flight. This was a Dr. Jeffries, an American physician, in regard to whose life and career, very little, unfortunately, is known.

Accordingly to Dr. John Poynton writing in the London *Lancet* (July 5, 1919) he was the hero, however, with a companion named Blanchard, of the first crossing of the Channel, tho he had previously ascended with the same aeronaut from the Rhedarium, near Grosvenor-square. "The account of this Channel flight written by himself" states Dr. Poynton, "is a record of serene bravery, for an undertaking of this kind was a big thing in those days. Strong adverse winds had delayed the departure from Dover, and it was not until January 7, 1785, that the ascent was made on a still, bright, winter day. The aeronauts made very slow progress in their balloon, for in 50 minutes they were only one-third of the way across the Channel. Trouble soon commenced and took a simple shape, the balloon insisting on descending into the sea. Ballast was heaved over, and then followed numerous pamphlets, which one would have thought from modern experience of such things would have lightened almost anything. For awhile, indeed, there was an improvement but not for long; the precious instruments had to go, the balloon trapplings, an empty bottle, their great coats, their lesser coats, their breeches, and so on. But what a man! He climbs up the netting and is enraptured at the lovely view he obtains as the balloon slowly revolves! Underneath a January sea is waiting for him, above is a winter sky, and around his immediate person a deficit of clothing! Fortunately for us all, just as they neared the French shore the balloon swept upward, cleared the cliffs, and carried them over the forest of Guines. Trouble was not over yet, but it was of a slightly different kind now, and the doctor's feelings must have been akin to those of the boy who eyes the volume and character of the birch that awaits him. It will be apparent that as the balloon was again rapidly falling, some importance was to be attached to the nature of the tops of the trees upon which they were landing. Jeffries thought they looked both high and hard, and he does incidently

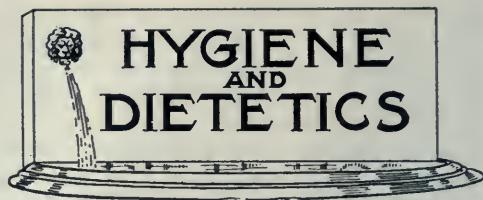
admit that he and his colleague were cold. Now comes the acme of resource and as great a proof of bravery, as ever the world can claim, he remembers that their bladders are full—for the weather was cold and the bottle they threw over was empty and the reflexes in those hardy old days were apparently impervious to fear. He estimated that thus they lightened the balloon by some 4 to 5 pounds and, glorious to tell, they landed softly on those trees and were soon warm and safe in the kindly hands of French hosts."

The Blood Lust.—Bernard Shaw once said, with his usual trick of hitting the nail on the head, that the average man is far below the average; and, with fresh instances of violence and brutality crowding the front page of the newspapers every day, one cannot escape the conviction that humanity is much less humane than we like to pretend it is. One looks to Russia and is appalled at the massacres perpetrated by the Bolsheviks and even by some of the reactionary elements. One looks to Korea and is shocked at the maltreatment of a race struggling for freedom. One looks to Poland and gasps at the reports of anti-Jewish pogroms. One looks to the Adriatic and is amazed to find Italians and French, so recently allies, murdering each other. In the hope of relief, one looks to our own country and blushes at the record of lynchings, race-riots and violence under this head recalling the brutality of officers toward military offenders. What is the meaning of all this? In 1914, before the war, tho the world was not altogether free of savagery, it was a rather peaceful place compared with what it seems today. What has brought about this change? It is not an easy thing to say, but, in asking one's self this question, baffled tho one may be, one cannot help suspecting strongly that the war has had a great deal to do with it, that it is closely linked with the brutality which is so much in evidence thruout the world. But, whether war is responsible for man's brutality or man's brutality is responsible for war it is difficult to decide. It is a patent fact that perhaps only one person in a hundred can honestly admit that he approves of war, that he likes it and that he

would welcome an opportunity to resort to armed conflict. The other ninety-nine frankly admit that they hate war, they are pacifists in the best sense of the word, and they entirely agree with Henry Ford's opinion that war is murder, however justifiable it may be in the rare instances when it is murder in self-defense. Of course, war is murder, it is a hideous and wrong thing—and that is why the whole allied propaganda put all its effort into the slogan that this last war was one to end all war. And yet is it not a strange thing that war is possible when only one man in a hundred approves of it and ninety-nine despise it? Even if we accept the radical viewpoint that, of the ninety-nine there is one man, a capitalist, a banker, a munitions maker, a food profiteer who is the real maker of wars, is it not still strange that one man who wants war because he likes it and one man who wants war because it is profitable can win over to their purposes the ninety-eight who do not want war and abominate it? There can be but one explanation of this unique instance in which a negligible minority can prevail over an overwhelming majority: there must be some element in the composition of the ninety-nine which they have in common with the one man who likes war and which they possess in a greater measure than they are aware. That element is what is popularly known as the blood lust, the aboriginal cruelty of primitive man; what the psychoanalyst would call the sadistic component.

It is an acknowledged fact that in every man the sadistic and masochistic components, in varying degrees, exist side by side. In the normal man they are a negligible factor. In the primitive man, the sadistic element was predominant. Surrounded by hostile forces and elements which he could combat only by force, he was able to live only by killing. The habit of killing goes back eons in man's development. But the recent development of the brain and the more recent development of the moral sense brought about the repression of the sadistic impulse—repression, one must bear in mind, not destruction. One of the marked qualities of the growing child is its cruelty, and the child goes thru the same stages of development as the race. This cruelty goes thru a process of repression during adolescence and seems

to disappear at maturity. Actually, it does not disappear—it merely is not permitted to show itself. Yet, existing as it does, there must be an outlet for it or the individual will pay the penalty. Many neurotics are merely the victims of an unsatisfied sadistic component, repressed because it would be wrong to satisfy it. But war is the logical vehicle for the satisfaction of this impulse. Brutal tho it is, morality and the consideration of conscience do not stand in the way. It is the one human activity in which brutality becomes almost a virtue. Military text-books are the best evidence of this. War is man's exhaust valve, thru which he can release all his pent-up savagery and do so with the approval of his fellowmen, with the approval even of his own conscience. The strain of civilization, under which he frets but which he is obliged to endure, is cast off and he can do the things his repressed self wants to do and can do without the danger of rebuke or reprehension. But the particularly unhappy aspect of the last war is that its long duration and its extreme violence have made it very difficult for men to revert to their old way of living, to their old repressions, to the conversion of their sadism to legitimate channels. A soldier on leave was dining in a London restaurant. In the course of an altercation with a companion he drew his revolver and shot him dead. In the ordinary course of things, the same man might have been satisfied with using his fists, but the habit of murder and violence had taken root in old soil. It seemed a trifling matter to him, and the court before which he appeared was amazed at the man's callous indifference when he gave an account of the episode. In Siberia, in Korea, in Poland, in Fiume, in sections of our own country, men have reverted to the primitive type, they have for five years lived under conditions in which it seemed right to kill, the discipline of civilization has worked off, the channels of violence are free and unobstructed. Is this the explanation of the increase of crime and murder thruout the world since the conclusion of the war? If it is, then the makers of peace have a greater problem before them than the disposition of territory, the rearrangement of boundaries, and the realization of political ideals.



Nuts and Fruits in Feeding of Children.—Dr. George Dow Scott has recently pointed out that among the laity there was a firm conviction that nuts give rise to indigestion and fruits caused hyperacidity. To some the knowledge that nuts were highly nutritious was new. Nuts, however, contain water, protein, fat, sugar, starch, crude fiber, and ash in large proportions. Each kind of nut has its particular caloric value. Dry nuts are very high in nutritive value and contain more fat than any vegetable substance known. In nutritive value nut butters are far above ordinary cream butter. The writer has given nuts to children as a substitute for meat because of the nutritive value, in intestinal fermentation. The proportion of the different food elements varies in the different varieties of nuts. The discomfort of eating nuts is due to faulty mastication and to the erroneous habit of giving them to children after a hearty meal, between meals or late at night, whereas they should form an integral part of a meal.

Dr. Scott spoke of the parts that nuts played in the dietaries of other peoples and said that mothers in this country should understand the food value of nuts better, giving a variety of nuts to suit the individual child, but it must be understood that they are given as an addition to the diet. Cautiously, after weaning, the child should be given nut butter. Such butters must be more carefully prepared than those for older children. The nut kernels are pounded in a nut mill until of a creamy consistency, strained thru two layers of clean boiled muslin or a fine wire sieve. Fruit juice of finely cut or mashed fruit should be added. The stools should then be watched for undigested particles or any chemical disarrangement as diarrhea, duodenitis, or enterocolitis. If the butter agrees the quantity can be gradually increased, care being taken to avoid overstocking the child's stomach or digestive capacity. In the constitution of infants nuts form a valuable aid as a lubricant on account of their oils, but they act as irritants because of the large amount of refuse which they leave.

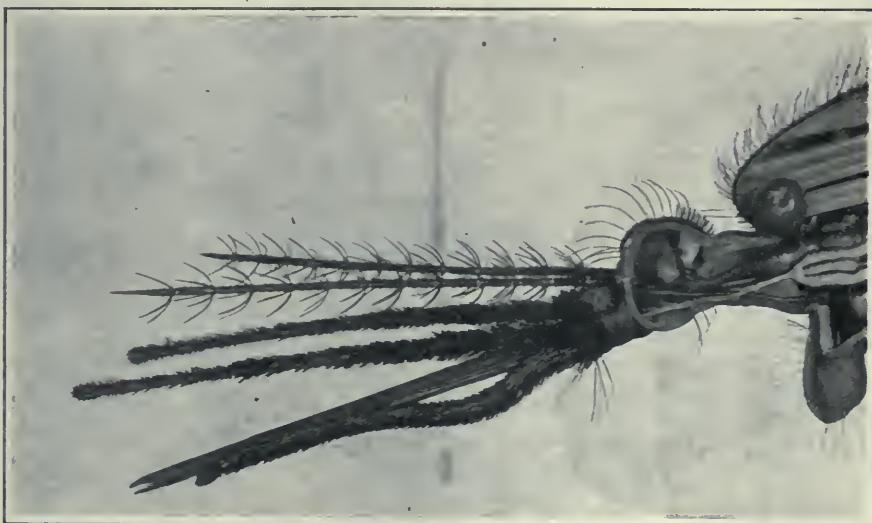
Fruits should be given to infants because they are palatable, refreshing, nutritive and because of their salts, their diuretic, laxative, tonic and antiscorbutic action. A fruit régime is devoid of toxins and supplies an unfavorable culture media for bacteria. In scurvy, stomatitis and other digestive conditions, the fruit juices will be found almost a panacea on account of their antiscorbutic qualities. In conclusion, the nutritive qualities of fruits and nuts are not to be depreciated; these foods are not to be given to the child as a pleasurable and luscious appetizer only, but as a food addition to the general

diet, stimulating, nourishing and exhilarating it to a stronger mental and physical existence.

The Carrier of Malaria.—The malaria mosquito, says a writer in the *Scientific American* (June 14, 1919), tho no new problem, constitutes an ever-recurring one. Every summer we have this pest with us, and every summer we are obliged to wage all over again the war upon it. This year the subject deserves, and is in fact receiving, more than the usual attention. While we have so many of our soldiers in the camps we are confronted with a series of artificial and highly concentrated seats of possible infection, in which the conditions of living, while subject to the closest control, are very far from those of ordinary civilized exist-

bat this unseen foe, because they were ignorant of its nature. As the name indicates, they imagined that the attack came from the air—preferably from the night air, which their fancy endowed with all sorts of evil qualities. It was not until 1897, thru the discoveries of Ross and others, that the life history of the malaria parasite became known; and of course even now the old ideas prevail in many uninformed quarters. With our present fund of knowledge, intelligent defense against malaria is feasible; and this year of all years, when so much is dependent upon the health and working efficiency of the nation, the subject is being given particular attention.

Malaria is transmitted by certain members of the mosquito family. Since this discovery was made, mosquitoes in general have received a good deal more attention than before, and



By courtesy of the *Scientific American*

FIG. 1. Head structure of the female mosquito, which does all the damage in connection with malaria propagation.

ence, and therefore likely to lead to all sorts of sanitary troubles, despite that control. At the same time we are putting forward a project to grant unoccupied lands to our returned soldiers which involves considerable danger. Such land as is available for this purpose is of necessity land which has not heretofore paid the cost of reclamation. This necessarily means that it is land on or about which there is an undue preponderance of water. The resident of Florida or the Mississippi Valley may be sufficiently acclimated to survive the conditions which surround him; the man from New England or the Northwest, suddenly and without preparation set down in these conditions, must inevitably succumb.

The scourge of malaria is as old as history itself. As early as the fourth century B. C. there are indications which are now accepted as authentic of malaria epidemics; the disease is conceded to have been a potent cause, if not the dominating cause, in the decline of the Greek civilization. The ancients could not com-

new species are constantly being found. Altho the insect in question is a tropical one, it is by no means confined to the tropics, some 40 different species having been identified in the United States alone. They range as far north as the Arctic Circle; and in Alaska, Greenland and on the tundras of Siberia, where other insect life is scarce, they constitute a terrible scourge. Explorers tell tales of the mosquitoes on the snows of the Far North which make the misdeeds of the Jersey variety seem tame in comparison.

Mosquitoes in general are good travelers, tho possessing little power of self-locomotion or even of self-direction. Like the old-style balloons, they go when and where the wind listeth; and, with a mild and favorable breeze, they will migrate to 35 or 40 miles distance from their breeding places. They vary in size from one-sixteenth inch to the huge Jersey "Gallinippers" of half an inch.

While any old kind of mosquito is a nuisance to have about the place, it is fortunate that

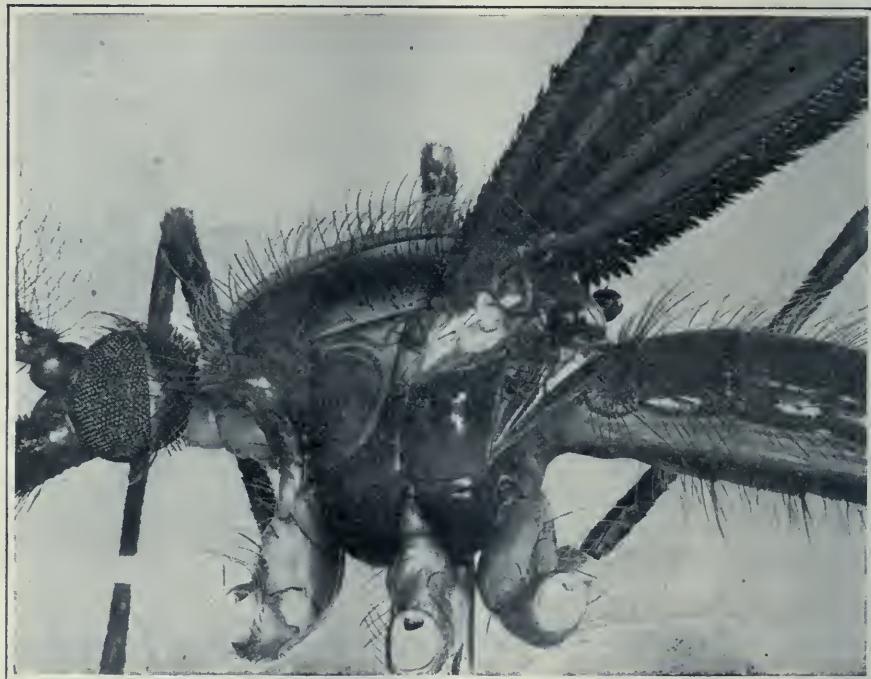
they are not all pathogenic. In fact, of the 40 American varieties, the only one which has been convicted of evil practice in the matter of carrying disease germs is *Anopheles Maculipennis*, or the spotted-wing mosquito. The present discussion will therefore be confined to this species.

Mr. Mosquito does not bite; his bill is so blunt that he could not be a blood-sucker if he wished. It is Mrs. Mosquito who does all the deadly work of fever propagation. She is most active around dawn and after sunset. She avoids strong light and prefers dark colors. She is essentially a domestic creature, staying around houses by preference. In the autumn the males die, and the females seek winter quarters. They hibernate in dark corners of cellar and garret, and on the first warm day

and the uncovered cistern.

In this stage the larva must have air, which it breathes through a siphon tube located near its tail. The normal position of the little animal is just below the surface, with tail pointing upward. It is at this time that the presence of an oil film over the water of habitation is fatal to the young mosquito; the oil clogs the siphon and the larva suffocates. This is by all odds the simplest and most effective way of destroying mosquitoes. It is simple because the problem of locating the pests is an elementary one; it is effective for the same reason that prolonged immersion in water is an effective way of destroying a man.

During the larval stage, which lasts from seven to 14 days, the malarial variety can be distinguished from all others, by the curiously



By courtesy of the *Scientific American*

FIG. 2. Museum model showing head detail of male mosquito, which does not bite or suck blood.

of spring are out laying their eggs. Save when extended by the arrival of this hibernating period, the life of the female is one or two months; the male, on the other hand, lives but a few days. The food of the mosquito is the juice and nectar of plants, and of course blood—the not necessarily that of man; animals, reptiles, and even caterpillars are bitten with the same freedom.

The female mosquito lays from 50 to 100 eggs at a time, on any quiet bit of water. In about three days they hatch, and tho at first the larva is very small, it grows rapidly and attains full development in a few days. We have then the familiar wrigglers of the old-time rain-barrel

inclined, by virtue of the fact that it lies with its body parallel to the surface of the water, while the other species hang with their heads downward. When the larva is ready to graduate, a T-shaped crack appears in the skin of the back, from which the pupa emerges. The pupa remains in the water, but does not eat. It represents the period of growth during which the internal changes begun in the larva are carried to completion, resulting in the adult mosquito. The most critical moment in the life of the mosquito is when it emerges from the pupa shell. As is the case with so many other insects at this stage, the wings are not hard or dry enough to fly at once, and the

creature is easily upset and drowned. In this way the flow of tidewater into marshes where mosquitoes have bred kills great numbers of them.

In the adult mosquito there are to be recognized three major parts: The head, the thorax to which are attached the wings and legs, and the abdomen. The head has two large compound eyes composed of several thousand simple eyes or facets. This enables the mosquito to see in all directions. In front of the jaws are two branch-like growths with 15 or 16 joints, and at each joint a whorl of fine hairs. These are the antennae, or organs of hearing. Beneath is the proboscis, or tool-box. First comes the labrum, the mosquito's drill, a long implement with a groove on the under side thru which the blood of its prey is sucked. Next comes the hypopharynx, a thin blade which can be closely applied to the under side of the labrum to form a closed channel for the passage of the sucked blood. The hypopharynx has a fine tubular channel of its own inside, and it is thru this that the malaria spores enter the body of the host. At the two sides and below the labrum are two pairs of slender lance-like instruments with spear-head points. These also enter the wound and help to brace the mosquito's head while its owner is enjoying his meal. It is probable that they fill the additional purpose of making the blood flow more freely. Below all this is the flexible sheath which is longer than the rest of the outfit and serves to cover the various organs and protect them while not in use. On either side of the proboscis are the maxillary palps or organs of touch.

The body is composed of three rings, the middle one bearing the wings. The latter are so very thin and delicate that they practically refuse to make any impression on the photographic plate, save where they are reinforced by ribs covered with fine scales. The arrangement of these ribs varies with the species; in the malarial variety there are four black spots on each wing which give rise to the name *maculipennis* already mentioned.

The legs are hollow tubes with the muscles inside. They are connected with the body by the coxal or hipjoint. This joint allows great flexibility of movement, and is altogether a very creditable bit of engineering design. The mosquito has three pairs of legs, of seven joints each. The hindermost pair is not employed in walking, as may be readily observed, but acts to balance the insect in flight and as an organ of touch. The mosquito has two pumps with which he extracts your blood; and when they both get under way you are relieved of a large drop of blood and inoculated with a goodly colony of malarial spores in less than a minute.

In view of the great timeliness of all discussion regarding the malarial mosquito and ways of meeting its ravages, the American Museum of Natural History has installed an exhibit consisting of large models of male and female *maculipennis*, together with the various stages in the development to the adult insect. It is from these models that the photographs shown herewith are taken.

The Cockroach: Its Destruction.—Holt in the London *Lancet* reports a long series of experiments on the subject.

Summarizing the results of the experiments as a whole, they seem to indicate that many of the substances which have been supposed to kill the cockroach have really acted by driving it away and so leading to its disappearance. Such gregarious migrations have been observed, but have hitherto been otherwise explained. For quick destruction stoving with bromine or sulphur dioxide is apparently best. For domestic application the daily use of creosote, wood naphtha, or the oil of rosemary, eucalyptus, or citronella placed near the haunts of the cockroaches for two or three weeks, should effectively disperse them. Where these are inadmissible on account of their smell, odorless dusting powders may be used. Of these sodium fluoride was found to be the most effective. It is also cheap and keeps indefinitely.

These experiments may have some value as applied to insect pests. The cockroach being abundant and of large size, it has been possible to use it as an "indicator" and to observe the results more accurately than would be possible with small insects. Other things being equal, the same results should follow in the case of many other insect pests.

Chocolate in the War.—What chocolate did in winning the war will never be fully realized. In all the lexicon of the Red Cross and other war relief activities probably no word spells so much of comfort, and nourishment, and cheer to wounded men and well men in the trenches. In solid and liquid form, on the field, in the trenches and back of the lines, chocolate was the first demand. Its popularity over coffee as a drink was largely due to the superior food value in the chocolate, to the greater ease with which it was prepared, and to its more lasting nourishment. A Red Cross field worker writes in his diary, "For one week I made from 250 to 300 gallons of chocolate daily, besides helping to serve the boys with socks, cigarettes and treat their various ailments with the drugs we had on hand." Again a chaplain writes, "I talked, read and prayed with them, wrote letters for them, and left them chocolate."

American Aid Checks Typhus in Roumania.—Fifty carloads of surgical dressings were sent from Red Cross Headquarters in Paris to Roumania where the Red Cross commission found the hospitals almost devoid of supplies, according to Lieut.-Col. H. Gideon Wells of Chicago, American Red Cross Commissioner to Roumania. Col. Wells, who is professor of pathology at the University of Chicago, and has been directing Red Cross relief operations in Roumania for the last four months, returned to America the last week in June. Ten Red Cross ships have landed millions of pounds of supplies in Roumania, all of which have been distributed under his direction.

"From the members of the royal household down to the humblest classes, everyone you meet admits that America's practical help came just in time and saved Roumania from starvation and the spread of typhus," said Col. Wells. "None of the war-stricken countries we have assisted could be more grateful. The effort to get food, medicines and the needed supplies in some measure to all parts of the country has been successful and work on restoration of the transportation facilities was progressing finely when I left a few weeks ago. The Red Cross is now distributing supplies from ten different points in the country. Typhus is still prevalent, in parts of Roumania, but American doctors and nurses appear to have the situation well in hand."



Neosalvarsan in the Treatment of Anthrax.—*The Medical Record* (Feb. 1, 1919) calls attention to the idea which obtains today that the non-septic forms of anthrax are amenable to various kinds of treatment, some of which may be quite simple, while septic anthrax, like all sepsis, is very refractory to any plan of treatment. The alleged remarkable cures which find their way into literature are usually of localized forms, which, while they may present a marked constitutional reaction, are seldom septic in the true sense of the term. Much confusion is associated with the management of the disease on this account. Whether serum treatment has ever actually prevailed over true bacteremia is still open to doubt. In the *Correspondenz-Blatt für Schweizer Aerzte* (Nov. 9, 1918) Gsell refers to the use of salvarsan in this affection. In the original case of Becker the general condition was bad, but the blood remained sterile, and this was true of the other related cases. Salvarsan was successful in cases of this type, but made an inglorious failure in others in which bacteremia was present. Only in the laboratory did this remedy cure septic cases, the bacilli dying in the blood within a short time, as shown by failure to develop blood cultures after treatment. The case referred to was not of especial severity, and was not septic at any time, but yielded so promptly to intravenous injections of neosalvarsan that the result deserved to be called favorable.

Acute Diarrhea in Infancy.—An editorial writer in the *Medical Council* (July, 1918) points out that castor oil, or milk of magnesia, may be indicated early in the case; and, in the breast-fed, the mother may have too rich milk and need to reduce her diet and take more exer-

cise. Many cases of indigestion resulting in diarrhea are due to too much fat in the babe's food, and it must be reduced. These cases are apt to develop an acidosis due to the fat taking up the alkali, and the stools become very acid and high fever develops. After a cathartic, sodium bicarbonate is demanded; and a glucose or maltose sugar should be added to the diet.

There is rarely too much sugar in breast-milk; but bottle-fed babes often suffer from sugar and other carbohydrate indigestion, with resultant diarrhea. Sugar indigestion makes green stools, as a rule; but there are no macroscopic characteristics of the stool absolutely diagnostic of the form of indigestion.

Diarrhea from excess of milk or cane sugar is more severe than when from starch or maltose-dextrin preparations. Treatment here demands an initial purge, a 12- to 24-hour fast and the dropping of sugar from the diet for a while. Protein is the food best borne and fat must be cut in quantity. Skimmed milk, with cereal diluents, serves well; but do not make the mistake of keeping the patient off of a minimum sugar diet any longer than is necessary. Babes do not thrive well without some sugar.

Starch has been unduly blamed for causing diarrhea. A well-baked starchy food is tolerated in small quantities by very young infants. It is remarkable how some laboratory-fed babes pick up when the mother begins to experiment with a little baked wheat addition to the diet. Indeed, we have personally seen mashed potato stop a persistent diarrhea in very young children.

When the mother's milk causes diarrhea, it is more apt to be from too much protein than from an excess of sugar. A menstruating nursing mother is apt to have an excess of protein in the milk, and nervousness and fatigue may act the same way. Take the babe partly off the breast milk and give a substitute weak in protein. Excess of protein causes watery alkaline stools.

Removal of Tonsils and Adenoids.—Bloom in the *New Orleans Med. and Surg. Jour.* for April, 1918, gives an account of his observation on the mental and physical state of children following the removal of tonsils and adenoids. He draws the following conclusions:

1. Children exhibiting some alterations in the normal histology of tonsils and adenoids give marked evidences of mental retardation.
2. Rheumatism, syphilis and tuberculosis from hereditary and environmental points of view have but little significance as causative agents of diseased tonsils and adenoids.
3. This series of fifty-seven cases did not exhibit the pathologic entities attributable to tonsils and adenoids, namely, endocarditis, myocarditis, rheumatic fever, chorea, etc.
4. In all there were twenty-nine causes for the removal of these glands—the marked improvement was evidenced only in cases where (1) persistent sore throat and tonsillitis with temperature; (2) frequent attacks of suppurative otitis media; (3) mouth breather and sup-

purative lymph nodes were the factors of their removal.

5. Adenoidecomies should always be practiced where the child is a mouth breather before the tonsils are enucleated.

6. The largest tonsils (by weight) were those removed from patients who previously had measles and scarlet fever; the smallest from children who had mumps and whooping cough prior to operation.

7. Only one child gave a history of pneumonia before the tonsils and adenoids were removed.

8. No relation between abnormal and diseased teeth on the one hand and glands on the other.

9. Weight Status—The weight curve showed appreciable improvement after ten years of age; gains were noted between 7 and 10 years, inappreciable before this time. Children with diseased tonsils are practically all underweight, namely 3 to 26 per cent.

10. Gratifying results were obtained in ninety (90) per cent. of forty cases where reports and statements were secured and especially marked in cases where frequent colds, tonsillitis (with temperature), and mouth breathing were the factors for their removal.

11. Frequent temperature traced to the tonsils and adenoids should be the indication for immediate removal after the acute symptoms have subsided, despite the fact that the child might be between the age of 12 to 24 months, respectively; on the other hand, if there is no temperature but the patient suffers from symptoms attributable to tonsils and adenoids do not remove these organs until the child reaches the age of 6 years. Finally, it is my hope that these modest findings will not be misunderstood, remembering this is the viewpoint of a pediatrician.

Pyretotherapy a New Thought in the Modern Treatment of Disease.—Pyretotherapy is a word invented by Mr. Konteschweller Titus (*Paris Thesis* 1918) to describe treatment by drugs that raise the temperature and create fever. In a chapter on the history of this treatment, which for that matter is wholly contemporaneous the author sets forth to prove that vaccination is not always specific and that heterovaccinotherapy (the treatment of several very different diseases by anti-typhoid vaccine, of typhoid fever by pyocyanic vaccine, of lupus by the streptococcus, etc.) can only yield its good effects by the rise of temperature thus determined. *Pari passu* the colloids also act by virtue of the febrile reaction to which they give rise. Investigation of certain diseases moreover shows a rise of temperature as a process of cure, natural fever possessing the same curative action as artificially induced fever. It is especially the sharp ephemeral rise of temperature that seems to do good.

Many patients have been found amenable to this mode of treatment. Typhoid fever, measles, scarlatina, erysipelas and pneumonia have been treated by means of the colloids, injections of

milk, nucleinate of soda and vaccinotherapy and the author attributes the good results to the fever thus induced. Acute rheumatism is especially amenable to this treatment, more particularly gonorrhreal rheumatism. Instances of the same kind are met with in surgery (infected wounds, septicemia), in dermatology (psoriasis), in ophthalmology (conjunctivitis trachoma), and in syphilography.

Mr. Titus has tried a large number of these pyretogenous agents and he describes them *seriatim*. He remarked particularly the good results of certain of them in gonorrhreal rheumatism. His most original researches, however, bore on the treatment of urethritis and salpingitis by intravenous injections of kefir. He describes the procedure which he followed and gives the detailed notes of eleven cases in which he obtained very encouraging results.

Doubtless it would not be difficult to discover matter for criticism in this observer's views and the conclusions he draws from researches anterior to his own as well as from the latter. Nevertheless, the idea is original enough and sufficiently logical for it to be of interest. His work may conceivably embody a commencement of explanation of phenomena that have remained more or less mysterious, the which are daily becoming more numerous.

Treatment of Gunshot Wounds.—After a complete surgical cleansing and drying with absolute alcohol the whole wound cavity, Livingston, Tubby and Mackie (*Lancet*, Feb. 15, 1919) recommend the application of paste of acriflavine. The paste contains one-half of one per cent. of acriflavine in a mixture of one part bismuth subcarbonate with three parts of paraffin. In cases of infected fractures, etc., the establishment of free drainage and removal of all necrosed tissues are followed by irrigation with eusol for from two to five days. The remaining necrosed tissues are then excised, the wound is thoroly washed out with alcohol, and it is filled with the acriflavine paste. This dressing does not require changing more often than about once weekly. The wound rapidly becomes sterile under it and fine, healthy granulations develop rapidly.

NEWS NOTES AND ANNOUNCEMENTS

\$1,500,000 Asked to Fight Influenza.—The American Medical Association at its closing session at Atlantic City passed a resolution calling upon Congress to provide a fund of at least \$1,500,000 to finance measures for the preven-

tion of influenza epidemics. The resolution stated that there was grave danger of more destructive outbreaks of the disease. If provided the fund will be used in research work by the Public Health Service, officials of which told the delegates that the causes of the disease were still a matter of speculation.

Medical Editors' Election.—The American Medical Editors' Association, at its golden anniversary meeting held on June 9th and 10th, in Atlantic City, under the presidency of Dr. George W. Kosmak, of New York, elected the following officers for the ensuing year: President, Dr. Seale Harris, of Birmingham, Ala.; first vice-president, Dr. Franklin Martin, of Chicago; second vice-president, Dr. H. S. Bakelot, of New York; secretary, Dr. Joseph MacDonald, Jr., of New York, (re-elected); executive committee, Dr. George W. Kosmak, of New York; Dr. Edwin Lewis, of New York, and Dr. D. S. Fairchild, of Clinton, Ia.

Col. R. P. Strong's Appointment.—Lieut.-Gen. Sir David Henderson, director-general of the League of Red Cross Societies, has appointed Col. Richard P. Strong of Cambridge, Mass., a member of the United States Medical Corps, as acting director of the Bureau of Hygiene and Public Health of the League. During 1915 Col. Strong served in Serbia as director of the American Red Cross and International Sanitary Commission that fought the typhus epidemic in that country. He was subsequently a member of the A. E. F., being associated with the department of infectious diseases of the chief surgeon's office. He is a member of the Inter-Allied Sanitary Commission and has directed the American Commission's research investigation in trench fever.

Government Regulates Dispensing of Alcoholic Drinks by Physicians and Druggists.—The Internal Revenue Bureau of the Treasury Department has issued new regulations governing the dispensing of alcoholic drinks by drug stores and physicians for medicinal purposes. Physicians may prescribe wines and liquors for internal use, or alcohol for external use, but in every such case each prescription shall be in duplicate, and both copies must be signed in the physician's handwriting. The quantity prescribed for a single patient at one time shall not exceed one quart, and in no case shall a physician prescribe alcoholic liquors unless the patient is under his constant personal supervision. All prescriptions must indicate clearly the name and address of the patient, including the street and apartment number, if any, the date when written, the condition for which it is prescribed, and the name of the pharmacist to whom the prescription is to be sent to be filled. Similar detailed restrictions on the sale of

alcohol by drug stores have been provided. All prescriptions must be preserved, and each month the names of patients and the total quantities dispensed to each during the month must be transmitted to the collector of internal revenue. Pharmacists have been advised to refuse to fill prescriptions if they have reasons to believe that physicians are dispensing for other than strictly legitimate medicinal uses, or if patients are obtaining thru several physicians quantities in excess of normal amounts.

A Franco-American Medical Entente.—An Associated Press report from Paris says that an organization has been formed there with the object of establishing permanent relations between American and French physicians and surgeons. Several commissions have been appointed by the organization. One of these will have in charge the establishment of a course of teaching for American physicians visiting France and another the founding of a bureau of information. A third commission will examine into means of organizing an exchange of articles on medical and surgical subjects between the journals of the United States and France.

New Physiologic Journal.—The first number of the *Journal of General Physiology* will make its appearance on September 20. This journal will appear bi-monthly and is intended to serve as an organ for publication of papers devoted to the investigation of life processes from the physicochemical point of view. The editors are Dr. Jacques Loeb, of the Rockefeller Institute for Medical Research, and Prof. W. J. V. Osterhout, of Harvard University. The subscription price is \$5 a volume and subscriptions should be sent to the *Journal of General Physiology*, Publication Department, the Rockefeller Institute for Medical Research, Sixty-sixth Street and Avenue A, New York City.

The Effeminate Warrior.—A new story of the Red Cross bag comes from Harvey D. Gibson, former Red Cross Commissioner for Europe who has recently returned to this country. He got the story from one of the workers in a Hospital Hut in Dijon. Everybody who has ever seen a wounded soldier knows the bag of gaudy cretonne with the little Red Cross in the corner in which each boy keeps the bit of shrapnel the doctor dug out of his knee, the last letter from home, the picture of his girl, his tooth brush and all his most cherished possessions. One of the boys in the Dijon Hospital had just been presented with his bag, a pink and white one. He accepted it gratefully; then he began to laugh. "Say," he declared, "if someone had told me two years ago that I'd be goin' to war with a wrist watch on one wrist and a bracelet"—he held out his identification disk—"on the other and a cretonne bag in my hand! Say, I'd 'a pasted him one!"

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Obedience to Law.—The Section on Preventive Medicine and Public Health of the American Medical Association at its recent meeting adopted the following resolution:

"Resolved, That the Section on Preventive Medicine and Public Health of the American Medical Association recommend to the House of Delegates that it ask the constituent associations to consider the advisability of such amendments to their by-laws and to those of this association as will eliminate from membership any physician who willfully fails or refuses to comply with local or State laws for the prevention of disease, including especially the provisions in such laws requiring the reporting of cases of communicable diseases."

If it were possible to secure the cooperation of all physicians in the enforcement of our health laws, the work of health administrators would be greatly facilitated. The benefits that would result would be of inestimable value. It is not too much to expect members of the American Medical Association to live up to their responsibilities to the general public. The right to practice is given by the State, and should carry with it the obligation of fulfilling all the duties to the State.

While the above resolution related to action on the part of special associations of physicians, a recent enactment of the Public Health Council of the State of West Virginia carries with it a demand for action

with reference to the reporting of infectious diseases that is far more rigorous than previous laws because it provides for the revoking of a license. As printed in the *Bulletin of the West Virginia State Department of Health*, July 19, 1919:

"Any physician who has been convicted of failure to report cases of infectious or contagious diseases to the local health officer shall be deemed guilty of dishonorable conduct, and may at the discretion of the Public Health Council, have his license revoked."

Furthermore, the health officer is held accountable for his prompt investigation of cases of infectious or communicable diseases within 24 hours after the receipt of a report of the existence of such infectious or communicable disease. The health officer may be removed from office for failure to send in a weekly report of infectious diseases as required by law, and he may be found guilty of neglect of duty and removed from office at the discretion of the Council for failure to prosecute any physician who fails to report infectious or communicable diseases as required by law.

By many, regulations of this character may be considered altogether too rigorous to be just. On the other hand, unless there be a law of this character, with jaws that bite and claws that scratch, there is a tendency towards laxity in the performance of a duty of paramount importance to the public

welfare. If the medical profession is brought to realize the enormity of the offense against public welfare in failure to report infectious and communicable diseases, there is every reason to believe that a more prompt and conscientious system of reporting will be instituted.

Drastic legislation within the bounds of reason is by no means a hardship, and if such rules as have been established in the State of West Virginia prove themselves to be of service in securing more effective cooperation on the part of the medical profession, there is every reason to believe that such enactments will be incorporated in the laws of other states. There appears to be no intermediate punishment for a first offense, but inasmuch as all action is within the discretion of the Council, it is probable that warnings will be given before the severe penalty of license revocation will be employed. It is obviously proper that the State possess some means of securing the enforcement of its health laws, and the question of maintaining a position in the community is one which should appeal most forcibly to physicians. To have one's license revoked for failure to live up to state regulations is a reflection upon the integrity of an individual, but this is by no means as serious as the fact that a revoked license deprives the individual of all rights to continue in the practice of medicine, for which years of preparation have been required.

If the resolution of the Section on Preventive Medicine and Public Health is accepted by State and County Societies throughout the land, there would undoubtedly be less reason for a state regulation as inaugurated in West Virginia, tho there still would be some members of the medical pro-

fession insufficiently interested in public welfare, who, outside of all association memberships, would have to be stimulated to the performance of their public duties. These two resolutions afford much food for serious reflection, as indicative of the necessity of securing more forceful measures to protect the public against violation of the public health laws referring to the reporting of infectious and communicable diseases.

The Mortality of Negroes.—The health problems of the negroes are numerous. The necessity for initiating provisions for caring for the colored population becomes more imperative as efforts to lower the mortality rates of the whites approach maximum standards. Unfortunately, statistical material available fails to be based upon the experiences in sections of the country where the colored population is most dominant. The great mass of the negro population resides in the non-registration area. In 1915, only 30.4 per cent. of the negro population were living within the registration area. In consequence, all statistical statements relating to negroes must be regarded as incomplete, and, in many instances, inadequate for the drawing of absolute conclusions. There must, naturally, attach some degree of uncertainty to the calculation of birth rates and death rates for the country as a whole, and when such a large proportion of a single class of the population fails to come within the registration area. It is possible, however, to tentatively note the more persistent characteristics of mortality figures which present specific death rates within the area of registration where differentiations are made according to age, sex, and cause of death. Even here, there is room for ques-

tion as to the relative accuracy of reporting facts relating to the negroes, as compared with similar items referring to the whites.

In the recent volume on "Negro Population" issued by the Bureau of the Census appears a vast amount of statistical material conservatively, but fairly interpreted. In the discussion of mortality, one notes that the expectation of life for negroes is consistently lower than that estimated for whites, male or female. This is partially due to the high infant mortality for negroes and the lower degree of survival thru infancy and adolescence. The duration of maturity and old age indicates that the average number of years lived in the ages 20 to 60 years is 18.0 per negro child born to 27.1 per white child born of the males, and the figures are respectively 19.9 and 28.6 for female children. It is only fair to remark that these figures are based upon the ten original registration states and the District of Columbia, thus evidencing a calculation of negro expectation of life upon experience in communities where the negro population is relatively small.

Leaving out of discussion the exceedingly high infant mortality rate among negroes, which, however, has shown a constant marked improvement, one notes among the specified causes of death a consistently higher mortality rate for negroes compared with whites, with the exception of such causes of death as cancer, cirrhosis of the liver, diphtheria and croup, measles, diabetes and scarlet fever. The great decimator among negroes is tuberculosis, with a rate of 463 per hundred thousand population in 1910, compared with 148 for whites. In this year, tuberculosis was responsible for 182 out of every thousand deaths reported for negroes. Pneumonia and organic diseases of the heart and

nephritis caused 692 deaths per hundred thousand population for the negroes as compared with 377 per hundred thousand population of the whites. The pneumonia rate was twice that among the whites.

The serious problem presented by these figures challenges our state systems of health administration, and provides much food for thought as to the safety of the colored population in a democracy. Undoubtedly, a considerable proportion of the mortality from tuberculosis and pneumonia is bound up in environmental conditions that are pronouncedly unfavorable. The entire answer cannot be found by stating that the figures for the negroes are highly colored in view of the fact that the rural population, to which such a large proportion of the negroes belong, is not adequately represented in our mortality statistics. Where comparisons are made between rural and urban death rates for negroes and whites, the balance of strength and vitality is shown to be on the side of the whites. Urbanization may condition a higher mortality of whites and negroes than living in rural sections, but there is insufficient evidence to show conclusively that negroes suffer more from this cause than do the whites.

In view of the higher incidence of venereal diseases among negroes, it is astonishing to find so little attention paid to this subject. The only tabular mention made is in connection with infant mortality, wherein it is shown to be a cause of infant mortality to the extent of 30 per thousand deaths. Even at this rate, it follows in seriousness diarrhea and enteritis, premature births, congenital debility, bronchial pneumonia, and pneumonia, acute bronchitis and convulsions. It is more serious than any of the communicable diseases.

It is noteworthy that in fecundity the negro woman apparently is more fertile than the native white woman, but offers fewer children than are found among foreign born white women. The number of children under five, per thousand women 15 to 44 years of age, varies in different sections of the country, and this holds true for the negro as well as for the white. Nor is it strange to observe a decreased productivity on the part of negro women by no means dissimilar in relative proportions to that noted among white women. For example, the number of children under five, per thousand married females 15 and over, in 1900 was 842 for negro and 643 for white, while in 1910 these figures had fallen to respectively 711 and 588. The contrasts for various sections of the country are well illustrated in the figures of the South and the West for 1910. The South gave a figure of 757 for negro women and 749 for white; the West 315 for negro and 518 for the white. If the birth rate among the negroes is actually decreasing regardless of the cause, it is fair to assume that the infant mortality rate will show marked decreases within very few years. With a continuity of more or less unfavorable economic conditions, the fewer children born, the lower is the mortality rate. The decreased fertility, therefore, of negro women may serve as a check to the infant mortality rate, provided, of course, that syphilis does not play too prominent a part in the cause of congenital debility and malformation.

The negro population of the United States today furnishes a very serious question that must be faced in the spirit of the present time, rather than in the spirit of bias or prejudice that still may linger in some quarters as a result of

the mental attitude engendered by the days of slavery. The problems of industry, with all the difficulties of hygiene and sanitation, call for no greater thought and effort than do the needs of the negro population. The high mortality figures still existent for this single group, comprising fully ten per cent. of the population of the United States, are a sad reflection upon municipal, state and governmental care given to these people whose economic, social and health salvation must be worked out in this country. This state of affairs may be regarded by many as belonging only to the South. Public health, however, recognizes no state boundaries or limitations. The fact that the negro is growing to be more migratory emphasizes the importance of a larger measure of effort to overcome the physical disabilities constantly undermining their vitality. Tuberculosis or pneumonia among negroes is as serious a public health problem as similar conditions existent among whites. The uniformly higher mortality among negroes in northern communities is sufficient reason to believe that public health efforts might well be directed toward them in the aim to improve general conditions of living, freer from the likelihood of death at every age period. The mortality and morbidity figures thus far available for the negro population constitute a serious indictment of our vaunted civilization, and our attitude towards the health and development of the negroes of this country.

Home Nurses.—At various times stress has been placed upon the necessity of increasing the number of persons capable of nursing. The experience of the past year taxed our resources beyond our ability to

give any form of care approaching adequacy. Thousands of persons undoubtedly died because of a lack of nursing service. There are many duties that the average person can be trained to perform, which would be of the utmost benefit in the home during times of health, but which would be of particular value in event of sickness. Public school systems have not devoted sufficient attention to the practical phase of home nursing, so as to incorporate courses in the curriculum. Secondary schools and women's colleges have been even more sadly neglectful of this duty of fitting girls and young women for assuming their responsibilities for nursing care. There is a lack of educational facilities which must be supplemented by some other machinery, and none can be more productive of effective results than the institution of practical courses in nursing under the auspices and direction of municipal government.

The City of Chicago has recently established what is to be known as the Chicago Training School for Home and Public Health Nursing. A capable faculty is to be selected and doctors and nurses of the health department are to cooperate in the training of women desirous of acquiring this direct information. The course of instruction is to be furnished without cost. It is to cover eight weeks, with three lessons a week. The arrangement of attendance has been fixed so that the course will be given in the afternoon and in the evening, with two sections running on alternate days of the week, thus making it possible for a large group of persons interested to take advantage of the facilities afforded.

The lectures and demonstrations, as outlined in the *Bulletin of the Chicago Department of Health*, July 19, 1919, are to cover: (1) Bedmaking—medical, surgical, mater-

nity and fracture bed. (2) Cleansing baths—baths for reduction of temperature, hot and cold packs. (3) Maternity nursing (care of mother and infant). (4) First aid—medical and surgical; poultices and stupes. (5) Care of contagious disease patients.

This experiment in municipal education under the auspices of the Health Department commends itself and merits emulation. It should have the whole-hearted support of the medical profession, because it will make for more careful nursing, and a more intelligent conception of the part that medicine plays in maintaining public health. All advances in bedside nursing constitute an aid to the physician, and promote the successful issue of sickness, whether acute or chronic.

The example set by Chicago can be adopted in communities, large or small. There is no reason why state institutes cannot be held in rural communities, with an itinerant corps of lecturers and demonstrators capable of giving the desired instruction. Intensive work, supplemented by courses of reading, with possibly a traveling exhibit, would go far towards raising the standards of nursing experience and preparation for home nursing thruout the country.

In the face of the bitter suffering in the past, while meeting epidemic conditions, there is every reason to fortify ourselves against a repetition of our state of unpreparedness. The time is ripe to devote time and money for the purpose of securing improved education within the home. Thus will develop an ability to meet the contingencies which naturally grow out of the invasion of disease. There is every reason to believe that suffering will be mitigated,

some degree of contagion averted, with a marked lessening of mortality at all ages.

Every woman, particularly those who are mothers, should be able to take temperatures, record the pulse and respiration, keep a bedside record, and intelligently carry out orders left by physicians. This knowledge is not in itself highly technical, nor is it too difficult to be absorbed by persons of average mentality. The end product of instruction of this character is not to be regarded as a trained nurse, but merely as a person with a practical working knowledge of how to solve some of the ordinary problems arising out of every-day living, with all its various hazards from disease and accident.

Bronchitis.—A number of medical conditions have been rather contemptuously designated "minor maladies." The term is unfortunate in that it fails to present the true picture of the pathologic conditions in relation to social welfare, economic loss, or the spread of contagion. In a workman, obliged to lift heavy weights, hernia is by no means a minor affection. Chilblains are hardly trifling for those who must work in communities where the climate is cold for a considerable portion of the year. The ordinary cold and bronchitis scarcely merit the inferior position employed in the term "minor malady."

Soper, *Boston Medical and Surgical Journal*, July 24, 1919, has written upon "Bronchitis, The Most Significant Disease of the War." The singling out of bronchitis in this way may come as a distinct revelation to those who have been accustomed to regard it as of trifling importance. Soper points out that the significance of bronchitis exists: *first*, on its own account;

second, because of its connection with other respiratory diseases such as pleurisy, pneumonia and empyema; *third*, because it provides means for the spread of infections, "which, altho not strictly respiratory, are believed to be transmitted in a respiratory manner."

Bronchitis was the most prevalent disease during the war, not merely in its association with other communicable diseases, but as an independent infection, which was almost universal in the Army and Navy camps during 1917 and 1918, particularly, during November, December and January. In all probability, a considerable proportion of the alleged bronchitis was of a pneumonic type, altho many so-called bronchitis visitations were passed over under the terminology of "colds." Unfortunately, one attack of bronchitis confers no immunity, but to the contrary, appears to make individuals more susceptible to future attacks. With a large proportion of men suffering from bronchial disturbances, the number entering into the hospital for this disease was comparatively small. Statistics, naturally, give no information regarding the part bronchitis played in laying a foundation for the more terrifying and devastating conditions such as pneumonia, pleurisy and empyema. But few soldiers, however, escaped bronchitis and, with it, a variable degree of impairment of physical effectiveness.

Bronchitis undoubtedly led to numerous fatalities as an intercurrent disease with measles, scarlet fever, and other infectious diseases, altho Soper suggests that the bronchial pneumonia following measles, for instance, might have been due to a bronchitis antedating the attack of measles. Bronchitis probably is not *per se* a cause of a serious mortality even tho it may be the

most prominent symptom present at any one time. The terminating condition is more likely to be a pneumonia.

The prevalence of bronchitis has not given rise to any definite information as to its specific causation. Numerous micro-organisms have been isolated, and various contributory causes have been alleged. Problems of clothing, exposure to dust, draughts and fumes are known to have some relation to the development of bronchitis, if only to the extent of serving as predisposing causes. The control of alleged conditions increasing susceptibility to bronchial attacks would tend to decrease the frequency of its occurrence, and would serve to lower the likelihood of a secondary visitation of more fatal respiratory diseases.

It is patent that an epidemic of bronchitis is practically beyond control, insofar as modern methods are concerned. Even the mask, to which the recent epidemic called attention, has been proven to be inadequate and for continuous use, is distinctly impracticable. The control of coughing, spitting and sneezing depends for effectiveness upon an appreciation by the public of its dependence on self-applied restraints for self-protection and for the purpose of protecting those with whom they come in contact. The dangers of disseminating contagious diseases during a period of bronchial cold are greatly increased and the paroxysmal expulsion of germs is a constant threat to those gathered together in close spaces.

A Crowd Disease.—According to Soper bronchitis is essentially a crowd disease in the sense that it occurs when people are crowded together and shows a preference for persons who are not accustomed to

crowds. In all probability, there are other factors entering into epidemics of bronchitis besides mere conditions of crowding, as they may occur in isolated communities where crowding, such as is found in churches, places of amusement and congested schools is lacking.

A question might be raised by the statement that the relative immunity which city people enjoy toward respiratory infections may be explained upon the theory of acquired immunity thru repeated exposure to small doses of the virus.

Under war conditions, overcrowding might have been prevented to some extent, but crowding is an essential factor in the massing of military forces. It is of significance, however, that there was much less sickness in the camps composed of tents than in those provided with wooden barracks. The lesson for civilians from army experience includes a recognition of the part that bronchitis plays in the causation and dissemination of disease. Further, it is important for civilians to understand the relation between overcrowded homes, cars, schools, churches, dance halls, moving picture theatres and other places where men, women and children congregate for various purposes to the development of coughs, colds and bronchitis. Most essential of all, however, is the recognition of the fact that bronchitis is by no means to be disregarded and scorned as a "minor malady", but one that is of serious consequence under conditions of congestion and crowding, particularly when opportunities for adequate heating and ventilation do not exist.

Industrial Specialists.—The growth of industrial medicine promises to yield large

benefits to industry and at the same time to provide a new field for medical specialization. According to Selby in his *Studies of the Medical and Surgical Care of Industrial Workers, Public Health Bulletin, Number 99*, "Industrial medicine may be defined as the theory and practice of medicine, applied to the purpose of preventing and alleviating sickness and injury among industrial workers in order that they may enjoy the benefits of continuous productive employment." It is patent that this definition involves many phases of medical activities including sanitation and preventive medicine, general diagnostics and internal medicine, emergency and orthopedic surgery, roentgenology, orthodontia, dental prophylaxis, as well as other specialties, such as those pertaining to the eye, ear, nose and throat. With this interpretation, it is obvious that preparation for industrial medicine requires a broad general training and an intensive experience in connection with industry, together with a decided interest in the development of an industrial practice, not as a side issue, but as the main line for life work.

The value of industrial medicine as a means of promoting quantitative production or of reducing the cost of production without lowering the quality has been sufficiently demonstrated to secure the support of employers. Employees have begun to realize the personal advantages procurable from the adoption of rational systems of medical service in industry.

In order to appreciate the scope of work involved in the promotion of satisfactory relations between employers and employees, thru the medium of industrial medicine, one need but note some of the types of service required :

"1. Treatment of injuries in dispensary,

home, or hospital, by physician, attendant, or consultant, including orthopedic and reconstructive surgery when necessary. 2. Opinions as to disabilities from injury and recommendations as to compensation awards. 3. Rehabilitation of impaired workers. 4. Regular factory inspection designed to uncover conditions that are inimical to health, and written recommendations to proper officials for their correction. 5. Studies of the effects of methods, processes, and machinery operations upon health and body functions, relating to posture, eye strain, monotony, speed, poisons, etc. Written recommendations to proper officials when effects are found to be harmful and advice to employees which will enable them to minimize the harmful results of processes from which hazards cannot wholly be removed. 6. Physical examinations of applicants for employment, and written recommendations to employing officers relative to applicants' fitness for work. 7. Examination of employees when their shop efficiency falls off, unless the reasons are evidently not physical; advice and treatment, or aid in obtaining treatment to such as need it; and written recommendations to foremen when deemed wise. 8. Examination of employees who do not feel well or do not appear well to their foremen or fellows; advice to employees when it is indicated; and written recommendations to foremen if altered working conditions are essential. 9. Monthly examinations of all process workers, those who may be engaged in any work that may in any way have ill effects, and of food handlers. 10. Health instruction by personal talks in the homes or factory, by lectures, posters, or pamphlets. 11. Records of data that will assist in the prevention of accidents and sickness. 12. Cooperation with other establishments and local, State, and national health authorities."

These are merely suggestive of numerous opportunities for correlating industrial physicians to plant organizations. Wherever possible, whole-time service is indicated, but when half-time or part-time service suffices such facts should be determined by the actual needs of the industrial plant rather than from considerations of the amount of

time at the disposal of any particular physician. Ordinary physicians in general practice, with a wide knowledge of the theory and practice of medicine are not necessarily fitted for industrial service. Special training is required to enable them to adapt their knowledge to the requirements of industrial work and to secure such supplemental information regarding sociology and economics and industrial processes as to fit them to make due and proper interpretations of the various problems that may arise in connection with their work. The growth of industrial medicine is rapid, and its wants can be satisfied only by the provision of specialists in this field, who have had the requisite preparation. In this connection, it may be said that post-graduate courses in industrial medicine are greatly needed and medical colleges have a field for future service that cannot be overlooked if they are to keep pace with the demands of civilization thru medicine. It is essential that medical colleges do not merely provide courses in instruction in industrial sanitation and medicine, but that some form of affiliation shall be worked out whereby practical experience may be secured by students in well organized industrial medical departments engaged in the practical application of industrial theories in daily life.

This work must be further supplemented by a wider knowledge of the nature, methods, advantages and technic of industrial medicine, so that its intent and purpose will be thoroly appreciated by employers and employees, as well as by the medical profession.

Industrial Medicine and Its Remuneration.—From the remunerative side, industrial medicine is more attractive than

many other phases of public health work. To quote from Selby, for illustration, in an establishment of 500 to 1,000 employees, a physician spending one-half hour daily receives \$900 a year, and another putting in as much time as is necessary receives \$1,200 a year. One company pays its chief physician serving part of the time \$2,000 a year. In an establishment of 1,000 to 2,000 employees, one doctor is paid \$3,300 for three hours daily. The salaries of full-time doctors vary from \$1,200 to \$3,000 per year, etc. The indications are made plain: "(a) That the remuneration of industrial physicians is very evidently a matter of individual bargaining; (b) that physicians who render service only on request are better paid proportionately than part-time doctors; and (c) that part-time doctors are better paid in proportion to the time they give than whole-time doctors." It is natural in the beginning of a new form of specialty having commercial value, that there should be considerable diversity in the remuneration, but with the growth of a better understanding of the financial value of industrial medicine, there will be an increased demand for industrial physicians, and here, as in all other lines of commerce, there will be a natural evolution in the scale of wages, dependent upon the law of supply and demand, and the relative ability of individuals who perform the services for which they are employed.

There is little doubt that within the next few years the industrial values of physicians will have achieved a higher plane, and that the regularity of hours of employment, the organization of duties and the perfection of technic in various directions will make the practice of industrial medicine highly desirable from every standpoint involving the physical and mental comfort and satis-

faction of the medical attendant specializing in industrial medicine.

The Prevention of TNT Poisoning.—

While the use of trinitrotoluol has already decreased and will undoubtedly play a smaller part in the affairs of the world, knowledge concerning its toxicology and the prevention of poisoning thru handling it possesses considerable value. A recent report by Voegtlind, Hooper and Johnson (*Public Health Reports*, June 13, 1919), presents the results of experimental study of TNT poisoning. While the original work was based upon the study of poisoning in dogs, a further investigation was later carried on in a large shell-filling plant.

The symptoms of TNT poisoning include cyanosis, constipation followed by diarrhea, salivation, incoordination, icterus and anemia. Diagnostic tests for the recognition of early poisoning depend upon the recognition of anemia and the presence of bile pigments in the urine. The blood of workers should be tested every eight to fourteen days and those revealing a decrease of 15 to 20 per cent. in the hemoglobin below the initial figure should not be permitted to continue the handling of TNT. Similarly, the presence of bile pigments in the urine, indicating a disturbance in liver function, may be the precursor of a rapidly developing toxic jaundice, and thus is an indication for the cessation of the dangerous employment.

A high protein diet has proven to be useful in increasing the individual resistance to TNT poisoning to some extent, and workers with this substance should eat at least 150 to 200 grams of meat daily besides other nourishing foods. It, of course,

is not possible to create an immunity to the chronic poisoning dietetically, but this is of particular importance in view of the fact that there appears to be a variation in susceptibility on the part of different workers due to differences in permeability of the skin.

The experiments in this country and in England have definitely shown that skin absorption is the principal factor involved in the contraction of TNT poisoning in man, tho this does not serve as a reason for neglecting proper ventilation of all rooms in which it is utilized. As a protection against absorption thru the skin, a shellac-castor oil varnish is recommended which may be applied directly to the skin, or for the preparation of impermeable cotton gloves. As a supplemental precaution, workers should be obliged to wash their arms and forearms with a ten per cent. solution of sodium sulphite before leaving the factory each night.

While lowered hemoglobin is an indication for the removal of a worker from his special process, it is equally important to exclude all workers possessing a low grade of anemia or any other symptom suggestive of a lowered power of resistance. Such individuals should not be permitted to handle TNT, regardless of any protective measures that might be provided.

Considering how little was known of the subject at the beginning of the war, and the rapidity with which munitions work was developed in this country, it is most creditable that our investigations of the hazards in munition factories have been so general and successful. The knowledge of industrial diseases has advanced tremendously, and, with it has come a better understanding of symptomatology, and, most important of all, prophylaxis. It is impossible, of

course, to remove every hazard connected with the manipulation of poisonous materials, but the application of principles already developed gives promise of a decreased relative morbidity from such substances as TNT.

A Home Mission.—No small measure of the accomplishments of missionaries in foreign fields has been due to their solicitude for the health of unchristianized peoples. The history of the efforts of medical missionaries thruout the world is a tribute to the spirit, courage, and dominant will as well as the enthusiasm and deep sympathy that mark the spiritual physician and medical religious enthusiast. The chain of hospitals, dispensaries, traveling clinics and centers of hygiene which spans many parts of the globe bears witness to their monumental efforts to combine the precepts of religious teachers with the practices of the noblest physicians.

Many of the problems of home missions have been attacked thru the establishment of missions and settlements in the midst of communities that have deteriorated physically, and, for biologic or economic reasons, have fallen behind in the struggle for existence. The institutional church has sought to create a closer harmony between theology and home living, with the ultimate end of securing conversion or of bringing the "wicked" nearer to salvation.

In the vast rural sections of this country, the church stands forth resplendent as a leader in moral thought. In our large cities, ministers, priests and rabbis are found listed among the good citizens having at heart the welfare of their communities. Their services to the public have been various and marked with a broad understanding of the

social problems involved in communal rehabilitation of the ideas and ideals for which the church militant has been wont to struggle. Too frequently, there has been a marked contrast between the public activities of our theological guides in their public capacity and in their private position. The church, as the center of moral interest, has not always directed its energies towards attaining a similar power in the field of education. Outside of visitations to the sick, and the performance of the usual conventional formalities near, at, and after death, there has been inadequate attention paid to the physical welfare of congregations.

During the war, without exception, all denominational churches succeeded in uniting in cooperative effort various groups of their congregation for the accomplishment of a definite purpose, tending to bring about the early and successful termination of strife. With the signing of the armistice, many of these activities, their purpose seemingly accomplished, ceased. The vital interests engendered by participation in a dominant service were permitted to lag and disappear. The call to service did not continue, and when the great patriotic cry for help was no longer heard, ears did not seek for other fainter appeals for succor.

A **splendid opportunity** presents itself to church leaders thruout the country. There is no reason why the church should not become the living hygienic center of a parish, a community, a village, or a township. What a tremendous gain there would be in health and vitality if each denomination, thru its organized governing bodies, were to establish a lecture circuit combining therewith exhibits, pageantry, posters, music and the various other devices known to publicity agents and propagandists with the view to raising the health standards of their

congregations. The cooperative study of infant and child welfare, the methods of prevention of disease, scientific home making, budget making, first-aid to the injured, the prevention of tuberculosis, respiratory diseases, venereal diseases, the plagues of flies and insects, the sanitation of farms and dwellings, the protection against the hazards in various industries, and countless other topics would afford a basic training that would make for better citizenship and more church going. It would be a simple matter to stimulate an interest in local problems relating to child labor, recreation, physical training, the reduction of illiteracy, if the church, in a unified effort, would present the facts to its communicants in terms of personal effect and local benefit.

The need for a health program of this character is emphasized in rural communities, where the status of the church as an effective factor in communal activity is higher than that existent in urban sections. The possibilities of leadership along health lines would inure to the benefit of portions of the population for whom the health message is particularly urgent.

The real home medical mission might easily be established if missionary zeal were directed to the presentation of a health program among rural churches. Souls may be won thru the saving of bodies. The church institute, the medical elevation of communal standards and the education of men, women and children in the science and art of right living may become as effective in attacking the problems of the American people as they have proven themselves to be in attacking the ignorant traditions of foreign peoples, to whom medical missionaries have gone in large numbers. Let the church rise to its present opportunities, coordinate its efforts, crystallize the ideas of its workers, and then push forth upon a

campaign for raising health standards throughout the Nation. Let it strive in cooperation with all organizations, public and private to evidence a deeper interest in keeping alive and well a larger number of communicants for whose souls the church is ever anxious and willing to struggle.

State May Provide Doctor's Office.—

The state may provide the doctor's office in the future and it may guarantee all or part of his income as an outcome of the growth and wider application of medical science, according to the forecast of a well known New York physician.

The government will establish a department of health eventually, he believes. He discusses what its scope should be, and how far it should confine its work to the prevention of disease. There might come about a centralized, coordinated administration of health activities. An effort should be made to provide adequate nursing service and constructive medical practice in communities at a distance from the large centers, where these needs are poorly met today.

The physician may some day be freed from the struggle and worry that he endures now by reason of the competitive and commercialized aspect of his profession. But the state must recognize that medicine is a profession and not a trade, leaving the physician wholly free to think and act, to study and to serve.

S. S. Goldwater, M. D., former Commissioner of Health of the City of New York, in *Modern Medicine* (May, 1919) thus sees the medical science of the future as one of the foremost social sciences. He cites the fact that vital statistics available in the United States are too incomplete to be of as much value as if they could be gathered for 100 per cent. of the population. The present statistics, he says, represent only 70 per cent. of the population.



Hogs, Bees and Babies.—Why is it that statistics are regarded by almost everyone as a dry subject? Nothing could be farther from the truth. On the contrary, the life of the statistician is, one is tempted to think, one interrupted emotional debauch; for, in the supposedly dry-as-dust figures in which he deals, he finds more of the human comedy and human tragedy of life than is to be found on the stage, in books, or even in life itself observed at first hand. What, for example, could convey more emphatically the immeasurable folly of human kind than the statistical item which appeared in the press recently: "The last legislature of Kansas made the following appropriation: For the health of hogs, \$25,000. For the health of bees, \$8,000. For the health of babies, \$7,000." What a shriek of delight the Chronic Cynic must have emitted when he read that item! What material for satire, what grounds for pessimism repose in these innocent figures! And how disheartening it must be to those who have the wellbeing of humanity at heart to know the attendant facts: that for four years Dr. Lydia De Vilbiss, as chief of the Kansas Department of Child Hygiene, has worked successfully toward the reduction of child mortality; that she asked for four field physicians and an enlarged office force to increase her work and was refused; and that she has resigned her office rather than continue her activities without adequate support. So that Kansas will continue to look after the welfare of its hogs, it will continue to make life endurable for its bees, but its babies will have to do the best they can with the help of Nature.

The story of Kansas would not be so pathetically hopeless if it were only a detached instance; but it is the same story in almost every community of the country. Is it not singular that, tho all education has been toward the respect for human life, all

political activity has confined itself to respect only for animal life? Propaganda for the better care of our horses and cows and cats and dogs has always been successful; there has been no limit on the funds that could be raised toward that end. But propaganda favoring the better care of humans, of babies, the aged, the defective, the disabled, has always had to beg in vain for years before it could get a favorable hearing; it has had to beg many years more to get favorable action. And when finally the legislators yield, they magnanimously vote a paltry \$7,000 for work on which the future of the country depends more than on any other single thing: the care of the young who are to be the citizens of the next generation. Who is at fault for this incredible myopia, this amazing incompetence to deal with one of the most vital problems confronting the nation? It would be idle to seek out any special individuals for blame. Rather, one is inclined to lay the blame at the door of our faulty education. In a large sense, it is due to the lack of imagination and the presence of a stubborn materialism which sees hogs and bees as a profitable investment and cannot see babies in the same light. But in a still larger sense, one may find the origin of this folly in the inadequacy of one of the commandments with which, from our earliest days, we are made familiar: Thou shalt not kill. From this commandment we acquire our ponderous and immutable respect for human life, but, once having fulfilled that behest, we are content. We feel that we have acquitted ourselves of our obligations in sparing human life, for nowhere in the Ten Commandments are we enjoined to do more than that: we are not asked to educate, to improve, to preserve. But, fortunately for the beasts of the world, there are no commandments governing our conduct toward them. We are permitted to kill them, and

we do. We are allowed to hunt and shoot them, and we do. Yet, feeling our obligation toward them, we discharge it by giving them consideration and care which we think superfluous in the case of humans. And so legislation in favor of beast and fowl goes on apace, and legislation in favor of unfortunate humans lags woefully behind. They may consider themselves lucky that they are permitted to live! One is reminded of what a cynic once said when an old lady of his acquaintance beat her dog cruelly: "She treats him," he commented, "as badly as tho he were a human being."

Speeding Up Evolution.—Professor Franklin H. Giddings, of Columbia University, one of the leading sociologists of the country, is of the opinion, often expressed before his classes, that the Civil War freed the negroes from slavery at a cost much greater than their emancipation was worth, that the violent process by which it was brought about left the negroes in a condition of unacknowledged equality which has often resulted in suffering and injustices which they did not endure as slaves. What Prof. Giddings emphasizes is the fact that, left to the slow but sure process of evolution, the negro would have come into his freedom, by the inevitable course of progress, in a few years anyway and that his freedom, if the result of evolution, would have been a real and not an artificial thing. There would be no race riots such as have made Europe wonder at our barbarism, no violent hatred of a man because his skin is black, no tendency to make a whole race the scapegoat of a few individuals' offenses. These outrages are merely a symptom of the fact that the white population of the country were compelled to accept the equality of the negro but they were not convinced of his equality—a conviction which could have come only as a consequence of slow education. In other words, speeding up the tranquil and somewhat sluggish process of evolution is a rather imperfect business. Evolution doesn't like to be hurried, and one anticipates its ultimate results only with dire consequences. The emancipation of the negro by violent means is a case in point: The negro, particularly in the South,

is at least as much the victim of injustice as he was before 1860, and it would appear that the hurried and untimely enforcement of national prohibition may prove another case of the serious consequences of forcing evolution to a premature issue. AMERICAN MEDICINE has always felt a friendly sympathy for the temperance movements of the past, even for the prohibition movement so long as it was conducted along the lines of moderation and rational education. These movements were meeting with a wide and encouraging response, popular feeling was swinging in their favor, and in due course of time they would have come into their own as a consequence of a growing conviction and the demonstrated value of their philosophy. Even among the drinking public the doctrine of temperance was subscribed to, the wisdom of moderation was conceded, and the propaganda was making friends everywhere, friends whose acceptance of the principles of temperance and rational prohibition was sure in the generation to come. The process of evolution was moving on at its normal pace. But, with a suddenness that came as a shock to moderate men, the prohibition forces were able to summon their numbers and influence legislation to such a degree that, almost overnight, the country found itself flung violently forward along a course which it had been following so easily and comfortably. The public, climbing at leisure, suddenly found itself kicked upstairs. Evolution had proved too slow for a handful of zealous agitators, and it had been given a dose of ether and alcohol to thrust it over the top. Prohibition had become the law of the land before the public could express its opinion at the polls, and so to many it seemed that the heavy cost of the Civil War was to be paid once more for a reform that was bound to come, at no cost at all, in due time; that all the imperfections and injustices and dangers that attend a speeding up of evolution were to be repeated. The public was once more forced to accept a condition before it was convinced of its wisdom or desirability.

Prohibition and the Alarming Drug Figures.—The uneasiness which prevails among the more moderate element of the nation's leaders as a consequence of this

abrupt and dangerous plunge into the hazards of complete prohibition is hardly allayed, in view of the close connection between prohibition and drug addiction, by the figures issued by the committee appointed by the Treasury Department to investigate the traffic in narcotic drugs. One cannot help feeling that prohibitionists have acted like a doctor whose patient was suffering from a headache and from a violent blood disease at the same time, but who treated the headache and neglected the dangerous disease. This committee confined its investigation to traffic in opium and cocoa leaves, their preparations and habit-forming alkaloids. It issued these amazing figures on per capita consumption of opium in this country, Italy, Germany, Portugal, France, Austria and Holland:

"Annual consumption in the United States, 470,000 pounds, or 36 grains per capita; Germany, 17,000 pounds, or 2 grains per capita; France, 17,000 pounds, or 3 grains per capita; Italy, 1,000 pounds, or 1 grain per capita; Portugal, 2,000 pounds, or 2½ grains per capita; Holland, 3,000 pounds, or 3½ grains per capita; Austria, about 3,000 pounds, or ½ grain per capita. As the average dose of opium," continues the report, "is one grain, the amount consumed in the United States per annum is sufficient to furnish 36 doses for every man, woman and child." Furthermore, an investigation of the number of addicts in this country shows that there are at least 1,000,000 users of drugs—the estimate is as high as 4,000,000 by some authorities. Concerning the possible effect of prohibition the committee says: "The consensus of opinion seems to be that the number of addicts will increase when the prohibition laws are carried out. These opinions are based, for the most part, on the theory that drinkers will seek a substitute for alcohol and that opiates and cocaine will be found most satisfactory for this purpose. This opinion receives some support from investigations in southern states where prohibition has been in effect. In these states the sales of narcotic drugs and cocaine have greatly increased."

That prohibition encourages an inevitable increase in the use of drugs has been shown so often that the committee's report may be considered unduly timid in its conclu-

sions. Some months ago, when prohibition was still in the balance, there appeared in these columns a summary of the consequences of prohibition in Vermont in so far as it affected the consumption of drugs in that State. The figures were quoted as a warning to the rash prohibitionists. The figures issued by the Treasury Committee are here reproduced not as a warning—it is too late for that—but as a chastening indication of the results to be expected from the temerity the propagandists have shown. It has been pointed out again and again in these columns that the danger of forcing drinkers to accept vicious substitutes is greater and more injurious to the community than the danger involved even in the intemperate use of alcohol. Even before prohibition came into effect, the United States consumed twelve times as much opium and cocaine as its nearest rival. Now the drug problem is bound to become more perplexing and troublesome than ever, and this at a time when the authorities are bending all their energies, tho greatly handicapped, in coping with this serious menace. The task of the health authorities, who are trying to check the use of drugs, has been immeasurably increased, their difficulties have been unnecessarily multiplied. One can only hope that their undertaking will not be rendered entirely hopeless.

Health Courses in Public Schools.—

One of the very first curiosities which an infant shows is about its own body. It is curious first about its toes, its hands, its limbs, and soon shows a marked interest in its entire mysterious body. Nine adults in every ten can recall this infantile but perfectly normal curiosity in themselves, but they recall at the same time it was invariably discouraged as something indecent and forbidden by their parents, so that with adolescence came the natural conviction that the body was something which should be given as little thought as possible. Their attention was drawn to mechanical toys, to building blocks, to books of fairy lore and magic; but the marvelous mechanism of the human body, the magic manner in which it works, were not considered matters for children's curiosity, and so parents have

generally failed to capitalize and utilize a natural tendency in the child which, if properly encouraged, would prove most valuable in later life—interest in the body and the instinct to take proper care of it.

With the opening of the schools in September a new principle in the education of children is to be carried out, a principle which will try to correct the error referred to above, which will certainly succeed if the program announced early in the summer is faithfully followed. At the Conference of Sanitary Officers and Public Health Nurses, held in June at Saratoga Springs, Dr. William A. Howe, of the State Health Department, announced that a syllabus in health courses covering every grade in the public schools had been prepared for the purpose of giving the pupils instruction in the care of their bodies, and that graduates of state normal schools hereafter must be qualified to teach public health. Thus the state once more invades the domain of the family, taking upon itself a function which has hitherto been regarded as strictly the mother's concern, and in doing this the authorities are revealing a true understanding of the tendency of the day. The modern family, while not disintegrating, is distinctly too preoccupied with its own problems to give children the care they should have; there is the increased difficulty of making ends meet financially, there is the obligation the woman feels of pursuing a career or of helping the man in pursuing his, there is the desire to realize a real companionship on an equal footing between the man and the woman, or there may be a very definite wish on the part of the woman to fulfil her individuality rather than sacrifice herself for racial purposes. All these things militate against the proper care of the young, the children get less and less attention, and it becomes the duty of the state, in self-protection, to take over these neglected responsibilities. As time goes by it will become increasingly evident that the state is the real guardian of the young, and one may look forward to this guardianship without misgiving. The tradition that the mother is the best caretaker of her child has proved merely a tradition. Of those mothers who are willing to educate their children in the necessary things, only a small proportion is really capable of doing it satisfactorily. The trained educator of children is

by far the more satisfactory, and the tendency, even on the part of devoted mothers, is to entrust the bringing up of their children to skilled educators. The function of the mother is being reduced to influence over the child's emotional and moral life, and that is a big enough task. In the hands of specially trained teachers engaged by the state, the child can learn such things as the care of its body by means of reading and practices which could be made as engaging as reading about kings and princes. It has the advantage of being the product, not of one woman's instinct or impulse, but the collective experience of sources of students who have put their whole heart in their work. As Dr. L. Emmet Holt, of Columbia University, said at the conference: "The time has passed when health can be placed entirely in the hands of the mother, who, in most cases, received all her knowledge from her own mother before her." It is difficult for the modern mother to compete with the professional educator. The circumstance should be an encouraging rather than a discouraging one, for it thus leaves the woman freer to fulfil her duty to herself—a duty which becomes more and more urgent as woman's part in the life of the state increases.

JUST WHISTLE A BIT.

Just whistle a bit if the day be dark,
And the sky be overcast;
If mute be the voice of the piping lark,
Why, pipe your own small blast;
And it's wonderful how o'er the gray sky track
The truant warbler comes stealing back.
But why need he come? For your soul's at rest
And the song in the heart, Ah! that is best!

Just whistle a bit if the night be drear,
And the stars refuse to shine,
And a gleam that mocks the starlight clear
Within you grows benign;
'Till the dearth of light in the glooming skies
Is lost to the sight of your soul-lit eyes.
What matters the absence of moon or star?
The light within is the best by far!

Just whistle a bit if your heart be sore,
'Tis a wonderful balm for pain.
Just pipe some old melody o'er and o'er
Till it soothes like summer rain.
And perhaps 'twould be best, in a later day,
When Death comes stalking adown the way,
To knock at your bosom and see if you're fit,
Then, as you wait calmly, just whistle a bit.

—Paul Lawrence Dunbar.



Yours cordially
A. J. Roosevelt



ABRAHAM JACOBI, M. D., LL. D. IN MEMORIAM.

BY

DR. S. ADOLPHUS KNOPF,
New York.

Five and sixty years ago he came to these fair shores
Where, years before, the Pilgrim Fathers landed,
Like them to find the home of freedom he had come;
A place where men could think and act like men, not serfs.
Because he had rebelled against their rule, Against their autocratic ways and unjust laws,
The rulers of those serfs imprisoned him for two long years.
They thought to break his spirit in this way,
But made instead a greater champion of the rights of man.
When free at last, he said farewell to all that was most dear
And sacred in the land where he had fought and suffered.
Where he had struggled hard that others might be free.
There long ago a Schiller spoke for freedom
And there the dying Goethe cried "More light, more light!"
How greatly then was such light needed To make of German soil a worthy free-man's home!
He wisely chose to come to free Columbia's shores,
Her doors are open wide for men like him; She gladly welcomed him, a rising Aesculapius,
Eager to serve her well with heart and mind.

A life of service then began, so great, so useful and so long,
That I feel loath to try to trace it here,
For fear I shall not give him half his due.
Long years before I saw the light of this good world
He was a master, teacher of my teachers;
His fame as healer spread o'er all the world;
His students numbered thousands, and still more
Are those who read his books on healing arts.
Thus everywhere are his disciples found,
He had become the Nestor of us all.
He founded clinics where the poor could bring
Their children and receive quite free that care
For which the rich so gladly paid in gold.
The rich or poor were all alike to him,
Those little sufferers that he loved so well.
Often I heard him called "The little children's savior."
A grateful mother, first with tearful eyes And choking voice told me she loved to call him thus;
No greater honor, holier name could ever come to man.
And yet, with all the honors heaped upon him
He had not changed in kindly simple ways.
The poor were always welcome to his home,
The struggling student found a listening ear.
And when the powers that drove him o'er the sea,
Became aware of his great fame and skill,
Wished his return, and honor to their seat of learning,
To make him *Herr Geheimrat, Excellenz*, He simply answered them, "I thank, you, no."
He had not lost his love for freedom's holy cause;

He loved America with love more true
Than some who were unto her blessings
born.
In this last, greatest war for freedom of the
world
His heart beat faster, regretful that no
longer
Was he young enough to join the army of
crusaders
Who crossed the seas to help our brother
nations
To free themselves and us from tyranny
and shame.
The God of battles still was with us, for
we fought
For right, and so our sacrifices shall not be
in vain,
And he was blessed at last to see the dawn.
Autocracy already in the dust, now free-
dom's holy might
Shall reign supreme in lands which suffered
long
From tyranny, and now arises hope
That even his old homeland shall be free.
Columbia's and Britannia's, boys, Italia's
and fair France's sons
Are brothers all and freedom's champions,
Prepared to help all honest efforts for an
honest peace.
This shall bring freedom to their one-time
enemy,
If he will learn to rule himself,
Will learn to love instead of hate
And realize the wrong his monarch did the
world.
Peace on this earth, good-will to men, shall
sound anew,
Glad tidings of this greatest gift to man.

A little over six months ago the above tribute was addressed to Abraham Jacobi. It was a unique occasion. American friends, who during the war had tried to help the small number of true democrats still existing in Germany to bring about an overthrow of the autocratic government and thus hasten peace, had united at a dinner to honor the venerable physician, philanthropist and patriot because he exemplified in his own person the former ardent fighters for German Democracy and had become the typical American who unselfishly wished freedom not only for himself but freedom

for all mankind. Dr. Walter Damrosch presided, and Dr. Jacobi, in the best of physical health and spirits, responded with vigor and brilliancy to the various tributes paid to him by the toastmaster, by Mr. Franz Sigel, Frederick L. Hoffman, Jacob Schiff, and the author. It was my good fortune to discover in an artist's studio the picture of Abraham Jacobi which he himself had designated as his favorite. When I wrote him that I had at last succeeded in getting that much desired photograph and sent him a reprint of it, he wrote in his inimitable and often humorous way: "The picture is fine. Your friendliness makes our people believe that I am as good looking a person as your photograph makes me appear. By the way, I am getting vain, and a few of my pictures would be welcome to me sometime or other."¹ When my little tribute was published it was illustrated with this portrait and sent to many of his friends and admirers. The responses received in acknowledgment would indeed in themselves form a unique tribute to the great man and would make a good sized volume.

Dr. Abraham Jacobi was born May 6, 1830, in Hortum, Germany; he received his preliminary education at the gymnasium in Minden, from which he was graduated in 1847. He entered the University of Greifswald as a student of medicine the same year, studied in Goettingen in 1848, and received his degree of M. D. at Bonn in 1851. He had joined the German revolutionary party with Carl Schurz in 1848, was imprisoned in various places for his political activity and for *lese majeste* from the summer of 1851 to 1853, in which year he fled to England and from there came to the United States. Dr. Jacobi married in 1873

¹The picture here reproduced is the one referred to as Dr. Jacobi's favorite picture.

Dr. Mary Putnam, a sister of Major George Haven Putnam of New York. Dr. Mary Putnam Jacobi was one of the first women physicians of this country and the first woman who graduated from the celebrated University of Paris. She died in 1906.

Dr. Jacobi was the first to occupy a chair for diseases of children in an American college. He held this position in the New York Medical College from 1860 to 1864, in the University of New York from 1865 to 1870, and from 1870 to 1902 in the College of Physicians and Surgeons. He remained Professor Emeritus of diseases of children in that institution (Columbia University) up to his death. In 1903 he received a call to the chair of Pediatrics from the University of Berlin, which he refused.

There is hardly a position of honor which the American medical profession did not bestow upon Abraham Jacobi. He was president of the New York Pathological Society, the New York Obstetrical Society, the New York State Medical Society, the New York Academy of Medicine, the American Pediatric Society, the Association of American Physicians, the American Climatological Society and the American Medical Association. He was an honorary member of many of the medical societies of the United States and abroad and an official delegate to nearly all the international medical congresses held during the last half century. Dr. Jacobi was a visiting and consulting physician to many of the leading hospitals of New York. Roosevelt Hospital, where he had held many a clinic as professor of diseases of children, honored him by calling the baby ward after him.

His literary contributions are too numerous to be summed up here. The eight volumes of "Collectanea Jacobi" give a fair

idea of the literary activity of this great man. His text-books on diseases of children have become classic and been translated into a number of foreign languages. He has been honored with the degree of LL. D. by the Universities of Michigan, Columbia, Yale, Harvard and Jefferson. Abraham Jacobi was not ungrateful for the honors bestowed upon him by past or present generations, nor had he forgotten the hospitality accorded by the United States. On the first page of his "Collectanea Jacobi" we read: "In memory of great and good men long departed, citizens of a hospitable country in gratitude for countless favors and honors received at the hands of colleagues, pupils, societies and universities during half a century."

Now after this brief sketch of the life of the great physician I should like to reproduce a few of the messages which I received from his colleagues, friends, pupils, admirers and patients in acknowledgment of the receipt of the tribute above referred to as well as some of the striking eulogies paid to Dr. Jacobi after his passing away.

Dr. Wm. C. Braisted, Surgeon-General of the Navy and president-elect of the American Medical Association, wrote as follows: "I was most pleased to receive a copy of your splendid and appropriate tribute to Dr. Jacobi who has for so many years 'deserved well of the republic' and adorned our profession."

Rear Admiral George H. Barber of the Medical Corps of the U. S. Navy: "I appreciate very much your courtesy in sending me your tribute to Dr. Jacobi. I have always held him in great reverence since my student days at the College of Physicians and Surgeons in New York."

Surgeon-General Rupert Blue of the U. S. Public Health Service: "The copy of your brochure, written as a tribute to Dr. Jacobi, has reached me, and I am indeed glad to have it in my library. It is a highly fitting tribute to the life and work of so eminent a member of the profession, and I

am proud to say that it expresses exactly my feelings of the Doctor's long and useful career."

Surgeon-General William C. Gorgas: "I have known Dr. Jacobi all my professional life, now over forty years. He was a professor in the medical class when I was a student, and a "Visiting" in the Hospital, when I was house surgeon; and in all these years since that time we have kept up our intercourse thru the Medical Association and otherwise. He was not only a great professional man, but was also one of the kindest and best men I ever knew."

Dr. Walter B. James, ex-president of the New York Academy of Medicine: "I have read your poem on Jacobi and find it most graceful. Dr. Jacobi deserves all of the good things his friends say about him."

Professor W. W. Keen of Philadelphia: "Thanks for the Jacobi reprint. I join heartily in every word of your tribute to the veteran Jacobi. Everybody loves him. It's nice to tell him so."

Mr. Adolph Lewisohn, philanthropist: "I received your letter enclosing reprint of the tribute which you paid to my friend, Dr. Jacobi, and I congratulate you upon the beautiful expressions contained therein. Dr. Jacobi has been a friend of mine since fifty years and, as you know, I am one of his ardent admirers."

Dr. David R. Lyman, president of the National Tuberculosis Association: "Your tribute to Dr. Jacobi puts our profession under a debt of gratitude to you for saying so beautifully to him what we all feel toward him. My sincere thanks."

Dr. Charles McIntire, secretary of the American Academy of Medicine: "I was interested in reading your tribute to Dr. Jacobi. He is a grand old man and worthy of all praise."

Drs. William J. and Chas. H. Mayo of Rochester, Minn., both ex-presidents of the American Medical Association: "Thank you very much for your kind thoughtfulness in sending us a copy of your eulogy to Abraham Jacobi. It is a beautiful tribute to his life and character. We are glad to have it for it is most interesting. His photograph is an excellent likeness and we shall have it framed for our gallery of famous physicians."

Sir William Osler, Regius Professor, Oxford, England: "Delighted to receive your Jacobi tribute. What a fine picture of the

dear old man! Poem and picture will go in my *bibliotheca literaris*. What a hard trial it must have been for him all through the War!" Sir William wrote me again on July 26th, saying: "And the dear Jacobi has gone. Well, nothing to regret. Such an innings!"

Dr. Charles A. L. Reed of Cincinnati, ex-president of the American Medical Association: "I am more delighted than I can easily express over the receipt of the splendid picture of my dear friend, Dr. Jacobi, and of your interesting lines in eulogy of him and his great achievements. He has practiced medicine in this country nearly as long as I have lived. From the days of my youth his writings have been an inspiration. In my fuller years my acquaintance with him became a bulwark of strength. He impresses me as possessing in eminent degree what have come to be recognized as the three cardinal virtues of the new civilization. They are lawfulness, service, and courage. The cardinal virtue of lawfulness is observance of the natural law that makes for human happiness and human welfare. The cardinal virtue of service consists not in words or even in mere thoughts but in the doing of things that will help others so to harmonize themselves with the natural law that they may achieve welfare and happiness. The cardinal virtue of courage is the willingness to strive, fight, and sacrifice for a recognition and observance of that natural law which impells us to our better destiny. Dr. Jacobi has thought these things, done these things, and lived these things in such eminent degree that he has become not only their expositor but their exemplar. His example must forever stand as an inspiration for all who strive for the right."

Professor Beverly Robinson, M. D., New York City: "The subject of your tribute is fine—none finer. Your tribute of Jacobi is worthy of him, our grand old man for whom I have a deep affection and highest esteem."

The Rev. Maxwell Savage, Unitarian minister, Worcester, Mass.: "Thank you for your tribute to Abraham Jacobi. He must be indeed a rare personality. What men they were who sought and sacrificed for liberty! Your lines set forth the free spirit and the hope of free men."

Mr. Nathan Straus, philanthropist and founder of free sterilized milk depots: "I

deeply and sincerely share your opinion of Dr. Abraham Jacobi. It is gratifying to see this opinion so beautifully expressed in your tribute. Dr. Jacobi has been of immense assistance in my work. Much of its success and universal adoption is due to his influence, for which I am deeply grateful."

Professor A. Van der Veer, ex-president of the American Medical Association: "I have read your tribute to the grand Nestor of our profession, Dr. Jacobi, with delight. It is complete, and I congratulate you upon being able to put into words that which we have learned from our association with Dr. Jacobi, for so many years, *i. e.*, the bright and noble side of life."

Rev. Stephen S. Wise, an ardent admirer of Dr. Jacobi, recalls in his letter to me the celebrations of the great physician's 70th and 80th birthdays and expresses the hope and prayer that God might spare the precious life of Jacobi so that we might have a fitting celebration of his 90th birthday which he believed should be made a better and finer thing than all the others.

A letter received from Prof. John A. Wyeth, ex-president of the New York Academy of Medicine and the American Medical Association, is too personal to permit its reproduction even in abstract form, but he calls Dr. Jacobi affectionately his "lifelong friend and beloved mentor."

Many other touching responses were sent to me in acknowledgment of receipt of my eulogy of Jacobi. They came from all over the United States and Canada. Lack of space does not permit me to mention more than a few of the men who had come under the influence of Jacobi, and nearly all of them spoke of him as their beloved master and friend. Among the men who embraced this opportunity to pay tribute to Abraham Jacobi while he was still among us were Drs. Thomas M. Balliet, Frederick Bierhoff, Vincent Y. Bowditch, Percy L. Boynton, Samuel A. Brown, Joseph Byrne, Julius Cone, Charles L. Dana, J. H. Elliott, Arpad G. Gerster, Irving H. Hance, Charles J. Hastings, Graham Lusk, Carlos F. MacDonald, Joseph M. Mathews, Wm. J. Schieffelin, Henry Sewall, Henry L. Shively, Chr. Sihler, Frederic E. Sondern, George David Stewart, Wm. L. Stowell, and Bertram H. Waters.

There is one more letter from which I desire to copy at least a few lines. It came from a grateful mother and speaks for itself: "Allow me to express my apprecia-

tion for the copy of your tribute to Dr. Jacobi, which so aptly expresses the sentiment of untold thousands to the great doctor. I, too, happen to be one of those grateful mothers you speak of.—Mrs. Harry Crayder."

No one has been able to tell the world the personal qualities of Abraham Jacobi in more beautiful language than his lifelong friend, the late Carl Schurz, who, on May 6, 1900, at the seventieth birthday celebration, spoke the following impressive words: "For fifty years I have loved him and been proud of him as a man of science of whom I know how learned, how conscientious, how indefatigable, how helpful and how justly renowned he is; as a citizen of whom I know how patriotic, how courageous, how unselfish, and how public spirited he is; and as a friend, whose nobility of heart only those can cherish and esteem as it deserves who know him best."

I feel sure that all who had the rare privilege of knowing Jacobi intimately have always had the same thoughts of him in their hearts.

And now, the master, the sage, the friend, the mentor, the lover of little children, the ardent patriot, the great physician, is no more. He passed away peacefully on Thursday, July 10th, at Lake George, with the members of his family, Drs. Francis Huber and Willy Meyer at his bedside.

The daily newspapers and weekly medical journals which appeared soon after Jacobi's death are full of praise of the man's achievements and qualities as a physician, teacher and citizen. The *New York Tribune* spoke of him as famous in many lands and as one of the most eminent medical practitioners of his day. The *New York Times* said: "Dr. Abraham Jacobi practiced medicine in this city about 65 years and had become not only the foremost authority in pediatrics but the dean of the American medical profession as well." The *New York Herald* gave an abstract of an appeal addressed to his colleagues during a liberty loan campaign, in which he said: "As one of the revolutionists of 1848, one of those who hope to bring about the destruction of autocracy and the establishment of democracy in Germany seventy years ago, this great war makes an especially powerful appeal to me. When I recall all those brilliant, unselfish, patriotic youths who gave up their lives for their country in the futile effort to overthrow Prussian militarism at

that time, I wish that Carl Schurz and hundreds of others might have lived, as I hoped to live, to see Prussian militarism and hypocrisy stamped out once for all. Long live my country and yours! Long live America!"

Stedman of the *Medical Record*, under the caption "A Great American and a Great Physician," begins in his editorial on Jacobi's decease with the following impressive words: "In the death of Dr. Jacobi, America as well as the profession of medicine, has lost one of its great men. Altho not in politics, Dr. Jacobi was largely in public life and was, in a quiet way, a power for good in the country. Born a German, there was never a Mayflower descendant whose Americanism was more genuine in feeling and more positive in expression than his. He had learned by actual experience the evil of Prussianism, and when, five years ago, the Hohenzollern and their robber barons began their predatory invasion of their neighbor's lands, Jacobi was among the first to recognize it for the despicable thing it was, and he let no counsel of neutrality, no inward call of the blood, no outgivings of German State-paid professors dissuade him from warning his fellow countrymen of the true meaning of that rush to loot."

The *Journal of the American Medical Association*, after tracing his brilliant medical career, concluded its tribute by saying: "Dr. Jacobi was perhaps equally well known as a great citizen. He was a formidable opponent of prohibition and an ardent advocate of birth control, and in every other matter of public interest he was a conspicuous character."

How deeply he was interested in the tuberculosis problem, I have had multiple occasions to observe. As a member of our local Tuberculosis Committee, he was more prompt in attendance than many of the younger men. To me personally he proved a wise counselor, guide and friend in my anti-tuberculosis work and a constant inspiration. He expressed kindly approval when he thought well of my work, criticized my shortcomings frankly and, encouraged me in hours of disappointments, trials and sorrows. On the fly leaf of one of his books which he presented to me, he wrote: "May you never lose your pleasure in public spirited work." He wished the younger generation to be imbued with the same spirit of

service to the public good which was characteristic of him thruout his long life.

Dr. H. Edwin Lewis, in the July number of *AMERICAN MEDICINE*, pays him the following touching tribute: "We learn with heartfelt sorrow of the death of that grand Old Man of American medicine, Dr. Abraham Jacobi. For a great many years Dr. Jacobi has been one of the country's foremost medical men. Respected, loved and honored by all who knew him, probably no other physician has ever held a higher place in the affectionate regard of his colleagues than this German-born but true American physician.

"The extent to which his judgment and opinion have been esteemed by all who knew him, has been shown by the fact that no public question of medical or sociologic importance has been considered well discussed or settled until Dr. Jacobi's viewpoint and advice have been obtained. 'What does Dr. Jacobi think about it?' has been a general inquiry if his opinion has not been in immediate evidence. It has seemed to be the common belief that his statement on any given topic would be the sound, common sense conclusion of a man who knew what he was talking about, and whose judgment, therefore, it would be safe to follow. The enormous influence such a man can wield for good has been abundantly shown thruout the last twenty-five years of Dr. Jacobi's life. During all these years to the day of his death he has been a sane, conservative adviser, a man who has been able to see the right and help others to see it, also. His poise, his kind and sympathetic manner, and withal his sterling honesty have made men trust him as few men are trusted."

Lillian D. Wald, the founder and head of the first Nurses' Settlement in America, in paying her tribute to Jacobi in *The Survey*, speaks of him as the great lover of children. She relates the following incident which, as she says, took place at the hearing of the Board of Estimate and Apportionment on a very hot day with regard to the opening of a small park. "Dr. Jacobi was there before me, and I besought him to go home, he looked so ill. 'I got out of a sick bed to come,' he said. 'For over twenty years I have wanted a little fresh air in that crowded part of New York, and surely neither the weather nor a sick bed can keep me from trying to make a speech for the children.'"

Dr. William J. Robinson, the editor of "Collectanea Jacobi," dedicated the 200th issue of *Critic and Guide* "To the memory of Dr. A. Jacobi, a good physician, a good man and staunch friend."

Mr. Oswald Garrison Villard, the editor of *The Nation*, paid a glowing tribute to the "Last of the Forty-eighters." In the issue of *The Nation* of July 19th he said: "Jacobi was always to be had for any movement for betterment. If they formed a committee of seventy or one hundred his name was always on it. Yet, he having the modesty of the truly great, few people realized how steady was his contribution to reform causes. The City Club, the Citizens' Union, Civil Service reform, better housing, the medical care of the poor and every movement for combating human disease came to this wise man for his support. And wise man he was. That magnificent head, the shaggy brow, those all-comprehending eyes formed a countenance to awe and impress until one knew the kindliness and warmth underneath and that he was always as generous to worth as he was tender to the little children who were his chief concern. Yet he could castigate—with a vigor that spared no one when his feelings were deeply aroused, as when he heard of some friends who sought to apologize for the dastardly sinking of the Lusitania and to argue that the Germans had a legal excuse for that atrocity. That he never forgave. He saw in the Germans going to war and their method of conducting it merely the flowering of the Prussian system of government against which he as a boy had revolted, the inevitable result of universal military service and the drugging of the conscience of the people by the various forms of state benefactions." . . . "Dr. Jacobi was of the old type of physician who was also counselor and friend. He was always more interested in aiding the children of the poor than those of any other class. The uncollected and uncharged fees of Abraham Jacobi for services rendered would have made a half dozen physicians well-to-do. Is it not a perfect ending to this life of unending service that the eighty-nine, he practiced to the last? Four days before his death his last prescription restored to health a little babe. How touchingly, how exquisitely fitting! Who can behold his life and not feel that sometimes cheer, goodness and profound merit do find their reward on

earth? To have known him was to receive a quickening of faith in all humanity because that rock of character of his was so immovable from its base."

A simple but impressive funeral service was held over the remains of the great physician at the Academy of Medicine on the afternoon of Monday, July 14th. The auditorium of the Academy was crowded to the doors by the men and women who had gathered there to pay the last honors to their departed friend. Major George Haven Putnam spoke of the sterling qualities of Abraham Jacobi as a physician, as a man, as a patriot, emphasizing the sturdy Americanism of his battles against overwhelming odds. He praised Dr. Jacobi as an ideal citizen who had rendered invaluable service to this community by his activities in building up the Civil Service Reform Association, whose counsel had been sought not only in sanitary and medical but in civil affairs as well. Dr. Reginald Sayre spoke of the medical career of Dr. Jacobi, calling attention to the invaluable work which he had done for the Academy of Medicine. This may justly be called his best monument, for it was due to Dr. Jacobi's wisdom, foresight and sagacity that this great medical institution has attained the high standing which it now enjoys in our community. Dr. Jacobi may however be remembered longest thru his ministry to the little ones, for as Dr. Sayre well said, "Abraham Jacobi is dead but his influence still lives, and it will be felt as long as children are born and require medical care."

A life such as Dr. Jacobi's should and must be an inspiration to the present as to future generations. Scientific medicine, pure Americanism, civic obligations and our duties toward our neighbor and mankind at large, have been taught to us by him. His great intellect and learning, with the finest qualities of heart and mind he devoted to the service of his fellowmen.

Abraham Jacobi entered public life in the storm and stress of the German revolution; he left it peacefully in the quiet of his beautiful country home in his much loved America, having lived to see the dawn of the new day his dreams had visioned long before.

What a wonderful life of nearly ninety years! Doing good until the last and then to fall asleep, beloved and honored, with all who knew him saying, "Well done, thou good and faithful servant."

BRINGING HEALTH TO SERBIA.

BY

DR. ROGER G. PERKINS,

Prizren, Serbia.

(Director Public Health and Sanitation Division, American Red Cross Commission to the Balkans.)

From the medical standpoint, Serbia has suffered more than any other of the Allies. With three hundred and fifty doctors in 1914 for a population of some five millions, the losses in medical men since then have

but for the aid of the Allies and of the United States.

The problem was perhaps most difficult in southern Serbia, which at the outbreak of the war had been freed from the Turkish rule for only a few years, for dominion under the Turkish empire had left the natives less receptive to progressive measures than the inhabitants of the more enlightened north, or what is known as Old Serbia. The population is more heterogeneous than in the north, with large num-



FIG. 1. Major R. G. Perkins, A. R. C.

Major Mintie, British Representative of Allied Food Commission.

Dr. Elitch, Food Director for Southern Serbia.

Major Frothingham, A. R. C.

been so great that less than one hundred are now available. Deaths were frequent enough by the ordinary accidents of war, but when the typhus swept over the land in 1915 and 1916 so many of the doctors died of the very disease they were striving to check that soon there were scarcely enough to carry on. Medical conditions in the country would have been impossible

bers of Turks in most of the communities, and the most conspicuous structures are the slender minarets of the mosques, formerly eloquent with the Mohammedan call to prayer, now silent for the most part and often turned to other uses.

The occupation of southern Serbia by the Bulgars in 1915 was a terrible burden. The great plantations of mulberry trees

for the prosperous silk trade, which brought in large revenues to the districts bordering on Greece, were systematically cut to the ground over large districts, the vineyards were destroyed, the tobacco plantations laid waste, and all the factories and warehouses belonging to these trades are gone. In many villages the only houses that are left more or less intact are those formerly occupied by Turks or Bulgars, while the rest have been systematically gutted of everything, doors, windows, even to the floor and

which the grass and weeds soon spring up and hide the very site.

The bridges and tunnels on the railroads were almost entirely destroyed and still are only partly repaired and the fearful roads thru this country of rocky mountain passes and mud plains have played havoc with motor transport. Every defile is marked by the remnants of trucks which have slid off the road and rolled to the bottom where they lie with their wheels sticking helplessly up into the air. Thru lack of sufficient



FIG. 2. Turkish house at Prizren, Serbia, converted into American Red Cross Hospital.

roof beams, so that returning villagers find but a cheerless welcome. In many places the entire population had been deported into Bulgaria, as far as the very shores of the Black Sea, and is now finding its way back, little by little, in rags, without money, to the villages it called home. In the villages since time immemorial the houses have been built of mud and bricks, strengthened with straw, like our adobe, and when the tile roof is gone, the rain soon melts a two-story house into a pile of mud and straw on

shipping and thru the needs of the Allies on the other fronts, it has been impossible to make up the losses, and now there are but few cars available and fewer shops and supply depots. Most of the draft and riding animals are gone—taken away by the enemy, or marking the lines of retreat by the whites with their bones, so that a few oxen and horses in poor condition, and a good many microscopic donkeys make up the main methods of communication throughout the countrysides.

With these practical difficulties and with many areas having only one doctor for seventy-five thousand people, not much imagination is needed for appreciation of the medical situation. The American Red Cross obtained the release of twenty-five physicians from the United States Army, and added a staff of about forty trained nurses to work with them. Groups of doctors and nurses were distributed to such points as were moderately accessible, given such medical supplies as could be obtained,

in the clefts of the fertile valleys round about, with no main railroad nearer than thirty miles. On good days the patients are received in the courtyard of the hospital, formerly a Turkish residence turned over to us by the local authorities. The gates are thrown open and the motley waiting crowd pours in and lines up against a rope barrier near the dispensary table. Clad in the quaint Turkish, Macedonian and Albanian costumes, each person's village marked by the pattern and arrange-



FIG. 3. American Red Cross nurse dressing tuberculous foot at dispensary at Gostovar, Serbia.

and told to establish themselves as best they could. Each center handles its medical relief work in connection with the distribution of food and clothing.

The basis of the work is the free dispensary, and a view of the day's work of any one of these is a touching picture. "Take one afternoon in a little town in the mountains bordering on Albania; with its picturesque red-roofed houses and crooked streets, it is the center for thirty villages

ment of his clothes, they make a gay picture in the sunlight—till one looks closer, when one sees that there are the lame, the halt and the blind, brought in to the healer by their friends and relations. Every ill to which human flesh is heir is here, save only the results of gluttony—a sin not possible now. But the saddest part is that many, many of them are so far advanced in disease that they are beyond treatment. Tuberculosis is ever before one's eyes—

tuberculosis of the lungs, the bones, the joints, the skin, and in all stages and at all ages. All the skin diseases, boils and abscesses that go with unsanitary living conditions, venereal diseases and their results, deformities of all sorts—everything in fact, from epilepsy to ingrowing toe-nails comes to our dispensaries."

And they come on foot, on donkeys, in ox-carts, from the village itself, from ten miles away, from twenty to thirty miles away. Many have walked for five or six

Cases that need surgical attention or medical care that can only be given in the hospital are taken in as far as possible, but at the best the space is limited, and many must be refused, tho we know that little can be done for them at home. Day after day they return and are treated at the dispensary and at least they carry away with them hope, and this often helps them to recover. As many cases as possible are visited at their homes, and when necessary they are given food, clothing and simple



FIG. 4. Turkish boy with bronchitis brought many miles on father's back to be treated at American Red Cross Dispensary at Gostovar, Serbia.

hours to get to the doctor, and must sleep somewhere by the roadside no matter what the weather, before they reach home again. One child with bronchitis was brought ten miles on his father's back; another boy with a tuberculous foot, so far gone that amputation was the only remedy, was carried over from another village on a litter by his father and mother; an old man with advanced dysentery came fifteen miles in an ox-cart, only to die in the hospital before morning in spite of all possible care.

remedies, but for each that is treated there are many who never get to the doctor, who never come to the attention of the visiting nurse. In Mohammedan countries the nurse is especially valuable for no man is permitted to enter the Turkish houses, and unless the patient can be brought to the clinic heavily veiled, she is inaccessible except to the nurse or woman doctor.

And the people are so grateful for the attention. When making the rounds, men and women rush up to the Red Cross car

and tell how they were at the "kolnitz" or hospital and how they have been improved. "I can walk behind my plow" says one. "I can see now to do my sewing" adds another. "My baby is fine," or "Can you come and see my father while you are here?" Farther off where there has been no Red Cross dispensary, less than a day's journey away, they came to me when I stopped for a meal or the night and asked me to see cases. When surgical help was needed in each direction, with a simple faith that the American doctor would make

to teach the ordinary rules of health, how can the poor people know that it is their insanitary way of living that causes their worst diseases?

That insects may carry disease is hard for them to understand, and such a thing as screening or any other protection against mosquitoes is unknown; consequently everyone in the swampy valleys has malaria, and at the dispensaries one sees patients with such terrible shaking chills that they cannot make connections between their cigarettes and their mouths.



FIG. 5. A Serbian boy who walked eight miles every other day to the American Red Cross Dispensary to have an infected eye treated.

everything come out all right, it was hard to have to tell some that it was hopeless and that we could not help them.

Nor is this all the Red Cross stations have been doing. In their wake, wherever they have been, follows a dawning of sanitary knowledge. Movies, lectures and traveling exhibits help greatly to convey these lessons to the people. In New Serbia, few can read, and with no organization

Loss of teeth in assorted lots before the age of twenty is so common as to cause no surprise. However, at the dispensaries when the fearful state of the mouth of one person is called to the attention of another who is still in better shape, there is a sudden demand for tooth brushes and what is more, there is increasing evidence of their use. The dentists attached to the medical service go from town to town and have no

lack of clients.

Those who eat food that has not been cooked since it was handled run the risk of any of the very widespread intestinal diseases. In the villages of the plains, there are only cesspools in more or less direct communication with the shallow wells, and in the hill towns where the swift streams come down from the snow-capped mountains, it is the pretty and picturesque and highly insanitary custom to have a little stream of water diverted from the main channel and running thru the ground floor of the house. Into this stream fall all the waste products of the house, and in the main stream, where join all the collections from the village, the community clothes are washed and the children play. The people argue that these things have always been done, why stop them now? We know by long and painful experience at home that the hereditary affection for the moss-covered and infected well is hard to overcome, but it will be a long time before much can be done in Serbia, but a beginning is being made. Orders are given the mothers who come with their pathetic sick babies to the dispensary to boil the milk from their tuberculous cows and also to boil the water they mix with it or give the children to drink, and each child that improves helps to spread the gospel.

In each town where there were municipal baths of any sort we stimulated their use, which had often been discontinued from lack of charcoal, and where there were none we started them. One of our methods of propaganda as to the proper uses of water was to refuse all material assistance until their cards had been checked at the bathhouse to show that a proper bath had been taken.

In time the Red Cross must leave Serbia.

The good work that has been begun must not be allowed to end. The Serbs are very responsive and anxious to advance their country, and as far as possible we are training them to take over the work that the Red Cross has begun. In respect to orphanages, schools, sewing rooms and similar activities, this is comparatively easy, but the real lack of doctors and nurses cannot be met so readily. America's reputation is very high in Serbia. They believe us to be disinterested, and they trust us more than any other nation. If means can be found to continue some of the Red Cross work for a period of several years it will be a real step forward in cementing the friendship that is the basis of a real solid League of Nations.

THE DIAGNOSIS OF EARLY PULMONARY TUBERCULOSIS.

BY
M. FORD MORRIS, JR., M. D.,
Atlanta, Ga.

"Find out the cause of this effect,
Or rather say the cause of this defect;
For this effect defective comes by cause."
Shakespeare's "Hamlet."

When we wonder why it is that one-seventh of the earth's human inhabitants pass to the great beyond as a result of the ravages of tuberculosis, we come to the conclusion that this high death rate is the result chiefly of two causes: the failure of the people to seek medical advice until the disease has passed the curable stage; and the failure of physicians to discover the presence of tuberculous infection when the symptoms and physical signs are slight. Obviously, then, the remedies for such a state of affairs are two in number. *First*, the public should be educated more in mat-

ters medical; they should be taught that this disease like

"Pale Death with equal foot strikes wide
the door

Of royal halls and hovels of the poor."

—Horace.

And they should be impressed with the wisdom of consulting competent physicians for the relief of minor symptoms, for such are the beginnings of tuberculosis. The other remedy is the exercising of diligence and thoroness, by every physician to whom the public comes for advice. It is a good plan to suspect and search for pulmonary tuberculosis in every patient. A popular Chinese proverb says that "Nature is better than a middling doctor." Whether this is true or not, of course, we will not argue; but certain it is that no practicing physician should be a "middling doctor," when the diagnosis of early tuberculosis is the criterion. It is certain that if one will study each case, possibly in the manner herein-after outlined, he will rarely miss the diagnosis.

A complete *history* is extremely valuable. The cause of the death of the patient's grand-parents, parents, brothers and sisters, and husband or wife is very important. In this connection, it is well to remember that the "chronic bronchitis," with which so many ancestors suffered, was usually pulmonary tuberculosis. A history of tuberculosis or of chronic respiratory trouble in the patient's family is the first link in the diagnostic chain.

The past history of a patient is of even more value than is the history of his family. A record of incomplete recovery from an attack of measles or whooping cough or influenza is very suspicious. Fistula-in-ano is a tell-tale symptom. Pleurisy, ischiorectal abscess, and glandular involvement in early life usually mean tuberculosis. Many his-

tories reveal the fact that the onset of tuberculous symptoms was just subsequent to an attack of "grippe" or a "severe cold." Frequent and protracted "colds" are often forerunners of pulmonary tuberculosis. The exudative diathesis, chorea, spasmophilia, angioneurotic edema, sciatica, herpes zoster, psoriasis and erythema nodosum have been noticed frequently to precede the onset of pulmonary tuberculosis. In a series of autopsies on asthmatics, done by Minnig, tuberculosis of the lungs co-existed with the asthmatic condition in an even 100 per cent. of the cases. A history of hemoptysis, however slight, in the absence of an evident lesion in the mouth or of a lesion in the heart or kidneys, is practically pathognomonic. It is well to remember also that in this country, the negro, the Scandinavian, the American Indian, and the Irish are particularly susceptible to tuberculous infection of the lungs, and that workers in steam laundries, glass-grinders, steel-grinders and furriers are prone to contract this disease. It is said that all miners will contract consumption if they follow their occupation for a few years. Occupations involving exposure to extremes in temperature, to dust and to dampness are favorable for the development of phthisis. Personal habits and unhygienic living conditions are frequently preparers of the soil wherein the germs of consumption later work such havoc. The rôle of tobacco in the causation of this disease has not been definitely settled, but certain it is that many an unfortunate victim has been deluded by the terms "cigarette cough" and "chronic bronchitis" until even the Angel of Death was outside his door. Some one has said that "alcohol makes the bed of the consumptive." The same is also true of other forms of debauchery. ("Let the wicked

forsake his way," sayeth the wise Isaiah.) A history of tuberculous association is extremely important and ominous.

A complete history of the present illness is most important. It is well known that a patient having incipient pulmonary tuberculosis may relate several of a large number of symptoms, some of which are not the least suggestive (to the patient) of lung trouble. Among the most common suspicious symptoms, we may enumerate the following:

(1) A persistent cough, which may be so slight that its presence is admitted by the patient only after a careful questioning. The patient may, and usually does, say that he has a "cold." The cough is nearly always more noticeable in the morning; this coughing usually produces some sputum. It has been said that "when there is a long persistent and otherwise unexplained cough, accompanied by either a subnormal temperature, or one that rises slightly in the afternoon, a probable diagnosis of tuberculosis should be made."

(2) A loss, or a capriciousness, of appetite, often accompanied by some digestive disturbances, is a frequent complaint.

(3) Malaise is very frequent. This may amount to only a loss of that feeling known as "pep"; or it may be a quite noticeable increase in weariness at the end of a usual day's work. As the disease progresses, a more pronounced loss of strength occurs.

(4) There is practically always a slight and persistent rise in the temperature. This increase occurs in the late afternoon or early evening. In some cases, however, it occurs in the morning. In order to discover this fever, one should take the temperature every two hours, and should let the thermometer remain in the patient's mouth for five minutes each time. Ac-

cording to Abrahams, in 80 per cent. of cases, at some time during the twenty-four hours the axillary temperature on the affected side is from 1° to 1.5° C. higher than that of the unaffected side. Exercise will usually cause a prolonged increase of temperature. If there is no elevation of temperature, especially after exertion, active tuberculosis is very probably not present.

(5) An increase in the pulse rate is nearly always present in early cases. This acceleration may be present at any and all times, even with the patient at absolute rest. A pulse rate, in early pulmonary involvement, of less than 70 is extremely rare, and a rate of 75 is quite uncommon. The undue and prolonged increase in the rate is usually especially noticeable after exertion by the patient. When exercise fails to influence the pulse abnormally, active tuberculosis is probably not present.

(6) A loss of weight, often so slight that the patient is unaware of it until he weighs, is usually present.

(7) Slight dyspnea, after exertion, is a common symptom.

(8) Hemoptysis, in the absence of a lesion in the mouth, heart, or kidneys, in a man, but not a woman, means pulmonary tuberculosis.

(9) Hoarseness, whether intermittent or continuous, is very suspicious.

(10) Often times the blood pressure is subnormal.

Other suggestive symptoms are slight nervousness, sweating after slight exertion, recurring colds, chilliness after slight exposure to cold or dampness or to a current of air. Fistula-in-ano is practically always due to the tubercle bacillus.

Of these symptoms, the five most important are evening increase in temperature, increase in pulse rate, cough, loss of weight

and loss of strength. According to Norris, "the protracted existence of any two of these symptoms requires a good cause to be shown why the diagnosis of pulmonary tuberculosis should not be made."

Physical examination:

In some cases, the chest is poorly developed and the chest measurements are subnormal. According to Garvin and his co-workers, in nine cases of incipient pulmonary tuberculosis, the total lung volume was found to be within normal limits, as well as the middle capacity, but the vital capacity was diminished. The expansion in the right apex is normally more than that in the left.

Litten's diaphragm shadow is useful in determining any difference in the amount of excursion on each side. In normal chests, the excursion is about two and one-half inches; with forced breathing, the excursion may amount to three and one-half inches. Excepting in people who are very fat or who cannot or will not breathe deeply, this sign is always present in normal chests. But in cases of pneumonia of the lower lobe, pleuritic effusion, extensive pleuritic adhesions and in advanced cases of emphysema, this shadow is absent. In early cases of pulmonary tuberculosis, there is, on the affected side, a slight diminution in the diaphragmatic excursion, as revealed by the diaphragmatic shadow.

In early cases, there is practically never an increase of *tactile fremitus*. It is necessary to keep in mind the facts that, in the majority of cases, the maximum of fremitus is felt over the anterior aspect of the apex of the right lung, that fremitus normally also is more pronounced over the upper parts of the lungs than over the lower parts, and, that this tactile sensation normally is somewhat greater over the right

lung than it is over corresponding parts of the left lung. However, in some apparently normal chests, the spoken voice-sounds are louder over the base of the left lung than they are over the apex of the right lung.

Practically all clinicians are firm in the belief that the earliest physical signs of tuberculosis involvement are discovered over the upper portion of the lungs, most frequently at the right apex. But Lopez, in an extensive experience in Argentina, says that he has found an isolated apical involvement in only a very few cases, and that the tubercle bacilli locate first in the glands around the hilus and attack the lower lobes more often than the regions above.

Normally, *percussion* elicits a dull note over the right apex, the second right intercostal space, the intrascapular spaces, between the seventh cervical and fourth or fifth dorsal vertebrae. Shattuck, in a careful study of the normal variations of pulmonary resonance, found that dullness at the right apex in front frequently extends below the clavicle to the second rib, and that slight relative dullness of the left apex, behind and of the left base posteriorly is common. Percussion produces a dull note normally also over the deep area of the heart and, according to some, also over the superficial area of the heart. Flatness is normal over the scapulae, and according to some writers, over the superficial area of the heart. In these early cases, no physical signs are pronounced, as a rule. When infiltration of the right apex occurs, the normal dull note becomes duller but not flat. This particular note may be described as "subdull" or "dull-flat." In case infiltration of the left apex becomes the seat of early changes, the normal re-

sonant note becomes dull. It is important to remember that, if the percussion note over the left apex is as dull as the normal note over the right apex, the left apex is the location of infiltration. It is easier to detect the change in the left apex by depending more on percussion on the anterior than on the posterior aspect of the left apex. Fishberg makes the statement that changes in resonance and breath-sounds, elicited over a limited area of the chest, if found anywhere below the third rib anteriorly or the fifth dorsal spine posteriorly are not of tuberculous origin, provided there are negative findings in the apices. Some writers consider, instead of dullness, a hyper-resonant note as the earliest change possible to elicit by percussion.

In practicing *auscultation*, the examiner must always remember that, normally, bronchovesicular breathing is heard over the right apex, over the second intercostal spaces close to the sternum, and over the interscapular spaces. Bronchial breathing is normal only over the trachea or larynx. Vesicular breathing is normally heard over the portions of the lungs not included in the above-named areas. When early tuberculous processes are present in the lung, the normal vesicular murmur changes to bronchovesicular if the involvement is in the pulmonary areas over which vesicular breathing is normal. If the infiltration occurs in those parts of the lungs in which bronchovesicular breathing is normal, the respiratory note changes from an inspiration and expiration of equal duration so that the expiration becomes of longer duration than inspiration. Thus we see that bronchovesicular breathing over the left apex denotes infiltration, whereas that same breathing over the right apex is normal. A prolonged expiratory sound over the right

apex signifies early tuberculous involvement usually. Both the whispered voice and the spoken voice are more or less indistinct over normal left apices, whereas they are normally fairly distinct over the right apex. Mentioned is the fact that the spoken voice sounds over the left base are louder in some normal chests than over the right apex. The increased whispered voice sound is considered pathognomonic of infiltration, when it occurs on the left side.

A decreased respiratory murmur, and a jerky inspiration or cog-wheel breathing are suspicious findings; but more important is the presence of rales.

Persistent and localized rales—whether they be moist, dry, crackling, crepitant or other variety—they are considered as very valuable evidence in the diagnosis of early phthisis. The crepitant rale heard at the end of inspiration over either apex is a classical sign—provided the rale does, or the rales do, persist after continued breathing. Potassium iodide in 5 grain doses given three times daily will often vitalize rales. Having the patient cough and breathe while the examiner listens over the apices, and, listening carefully over the acromial end of the clavicle will both often detect the presence of rales when no other method will. In the great majority of cases of early pulmonary tuberculosis, the only rales of importance are those heard over and near the apices. Rales are always pathologic. A single rale or many rales, if localized and persistent, may be considered as the earliest evidence of tuberculous involvement obtainable by physical examination.

Careful and frequent examinations of the sputum should be made in all suspected cases. The finding of tubercle bacilli therein is considered as absolute proof of an active tuberculous process in the lungs. In

Slater's estimation, the sputum of patients in the incipient stage, when examined in sanatoria where most careful work is done, is positive for tubercle bacilli, at any time, in not more than 33 per cent. of cases. The older method of staining the untreated sputum is rarely successful.

The *antiformin* method is much more productive of positive results. A technic frequently used is as follows: a mixture of one part of antiformin and of five parts of sputum is allowed to stand for several hours, the mixture is then diluted with water or alcohol and centrifugalized; the sediment is collected several times, the final sediment being stained and examined.

In order to demonstrate the presence of the tubercle bacillus in the sputum, different workers have devised several excellent variations of the above-mentioned *antiformin* method. One of these variations is the following technic used by Ymaz: To a mixture of equal parts of sputum and 50 per cent. *antiformin* solution, which mixture has been boiled, is added an equal amount of syrup (*jarabe*) with a specific gravity of 1,260. To this mixture is added a small amount of ether, which is then well mixed, to form an emulsion. After centrifugation at high speed for some time, the tubercle bacilli will be found in the whitish zone that forms at the plane separating the two fluids.

The Ellerman and Erlander method of sputum examination is a most excellent procedure and is often productive of positive results when other methods have failed. The technic is as follows: The entire expectoration of three days is collected in a clean, wide-mouthed bottle. To this is added an equal volume of 0.6 per cent. sodium carbonate solution. After shaking, the mixture is placed in an incubator and

allowed to digest at a temperature of 37° C. for twenty-four hours. The time of digestion should be increased with thick, purulent specimens. The mixture is removed from the incubator and should consist of two layers; the upper, cloudy fluid; and the lower, a varying amount of homogeneous sediment. The entire fluid portion is poured off (into 5 per cent. *lysol* or similar solution); and to the remaining sediment is added four or five volumes of 0.25 per cent. sodium hydrate solution. The mixture is next transferred to a suitable vessel and boiled for one or two minutes. Large test tubes (eight by one inch) or small beakers are found convenient. After cooling, the mixture is transferred to 50 c. c. centrifuge tubes and centrifugated at high speed for ten or fifteen minutes. The resulting sediment is smeared upon two or three slides, making rather thick smears, and then stained in the usual manner.

To stain the tubercle bacilli, the Ziehl-Neelson method is the one most generally used. The fixed smear is first stained with carbol-fuchsin, then decolorized with 3 per cent. hydrochloric acid in 95 per cent. alcohol, and then counterstained with methylene blue. According to the method used by Lewis and Krauss, a mixture containing 20 c. cm. of a saturated alcoholic solution of pararosanilin and 80 c. cm. of 5 per cent. phenol solution is substituted for the older carbolfuchsin, with equally as good results and with a saving of some time.

If no tubercle bacilli are found, the sputum should be examined for lymphocytes. A lymphocytosis of from 30 to 50 per cent. is highly suggestive of tuberculosis, and above 50 is diagnostic.

Even when some other attempts to demonstrate the presence of tubercle bacilli in the sputum have failed, the *cultivation* of

Koch's bacillus from the sputum is sometimes successful. The best of such methods is probably that of Petroff, which is as follows: about 5 c. cm. of fresh sputum are mixed with sterile 3 per cent. sodium hydroxide solution, in a sterile bottle; with frequent shakings of the bottle, the mixture is incubated at 37° C. for thirty or forty minutes, a piece of sterile litmus paper is placed in the mixture and the mixture is neutralized with sterile normal hydrochloric acid; the mixture is then centrifugalized at high speed for ten minutes; the sediment is then planted on Petroff's gentian-violet-egg-veal medium; and this implanted medium is incubated at a temperature between 38° C. and 39° C.

Probably more in use as a diagnostic agent than Petroff's method is the lowly guinea-pig which receives into each groin, as well as intraperitoneally, an injection of a uniform amount of sediment resulting from the centrifugalization of washed and digested sputum. The usual procedure is to autopsy the guinea-pig at the end of six weeks. In the event that the sediment injected into this little laboratory animal contains tubercle bacilli, the autopsy will reveal characteristic signs of tuberculous infection. The X-ray of the injected guinea-pig for five minutes every other day for at least six days usually hastens the tuberculous process to such an extent that a positive diagnosis may frequently be made from a nodule removed under local anesthesia, at the end of two weeks.

There was a time when much faith was placed in the results of the various *tuberculin tests*. At the present time, however, excepting in children under four years of age, the different tuberculin tests are not considered as very valuable, by the majority of workers. Some, however, consider a

marked local and constitutional reaction, following the introduction of the diagnostic dose of tuberculin, as proof of an active tuberculosis. The opinion of a great many diagnosticians is summarized by Brown in the following words:

"No modification of the tuberculin tests, as yet devised, differentiates clearly clinical tuberculosis that demands vigorous treatment from non-clinical tuberculosis that requires only a God-fearing life."

The *complement fixation test*, however, is extremely valuable in the diagnosis of early tuberculosis. The test is positive in about 85 per cent. of the early cases, is sometimes present before a diagnosis by physical or X-ray examination can be made; this test is negative in non-tuberculous individuals and in syphilitics who are clinically free of tuberculosis. The intensity of the reaction decreases or the test becomes negative simultaneously with the arresting of the tuberculous process—just as the Wassermann test does in cases of syphilis. It is evident, therefore, that a positive complement fixation test means an active tuberculous condition, and, that a negative reaction means nothing. The best results have been obtained by the use of *Miller's antigen* and the partial antigens of Deyke and Much.

Altho the *examination of the blood* is not of as much value in the diagnosis as is the complement fixation test, it may help considerably in arriving at a diagnosis, especially when the complement fixation test has not been done. The lymphocytosis present in tuberculosis is more apt to be relative than absolute, in contradistinction to the absolute lymphocytosis (usually accompanied by an eosinophilia) which is usually present in cases of syphilitic infection. According to Bachman and Lucke,

the lymphocytic picture has an inverse ratio to the percentage of polymorphonuclear neutrophilic leucocytes; in other words, the more advanced is the disease, the higher is the percentage of the polymorphonuclear neutrophilic leucocytes and the lower is the percentage of the lymphocytes. Bachman and Lucke found that, in the first stage of pulmonary tuberculosis, the polymorphonuclear neutrophilic leucocytes averaged 56 per cent. and the lymphocytes 24 $\frac{1}{10}$ per cent. and that the Arneth index increased approximately 6 per cent.

The X-ray is a most valuable agent in the diagnostician's armamentarium. The X-ray is capable of revealing changes in the lungs which cannot be demonstrated by any other method. In many cases, the X-ray plates reveal structural changes before the appearance of any physical signs, and, in practically all cases, these photographs show changes much greater in extent than the physical signs indicate. About the only early change shown by the fluoroscopic method is a slight diminution in the amount of expansion on the affected side. Plates made by the stereoscopic method or by sending the rays obliquely downward in line with the chin so as to project the clavicle downward and clear the apices of the lungs, show the earliest changes. There is some diversity of opinion as to where the first changes occur. However, according to Lapham, "the first abnormal conditions are seen in the enlargements of the bronchial glands, the second set of changes consists in thready infiltrations running from the root up towards the apex of the lung." To quote Hubeny: "The first points of election appear to be in the first and second interspaces near the median triangle and toward the periphery of the lung near the angle of the scapula." In the

words of Pfahler "one finds this evidence most frequently at the apices and particularly at the inner portion of the apices of the lungs, extending down along the paravertebral border; this evidence may occupy also the apices of the lower lobes or the outer portion of the middle lobe in adults, while the disease, in children, seems to extend most frequently outward from the roots of the lungs." In 60 of 62 patients in the incipient stage (37 of whom had no physical signs of consumption but all of whom had or had had positive sputum), examined by Bushnell, the X-ray examination showed paravertebral tuberculosis above the hiluses. The fan-shaped area of thickened linear markings representing the course of the lymph channels draining the infected area is considered of much value by many radiologists, especially by Dunham, Holmes, Aaron and others. "In early and slight lesions where a low grade inflammation was spread by continuity of mucosa, the fan appeared wide open and distinct." Altho these pulmonary pictures show us the site and extent of the involvement, they, like the tuberculin tests, do not tell us whether the tuberculous condition is active, quiescent or healed.

One should not rely too much upon any single method of arriving at a conclusion as to the tuberculous or non-tuberculous nature of any case. One should use all of the methods outlined above, if necessary, in order to make a correct diagnosis. "Art is long, and Time is fleeting."—But he who works will win.

In the detection of incipient phthisis, the opportunity, for the display of medical learning and for the rendering of real humanitarian service to our fellowmen is exceedingly great. It seems possible and probable that, if every case were diagnosed

in its incipiency and were given proper treatment, this scourge of the ages—this same consumption with which Moses cursed the disobedient of his people—would become, within a hundred years, only a bitter memory.

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SURGICAL TREATMENT OF HALLUX VALGUS AND ITS COMPLICATIONS.

BY

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Hallux valgus is a deformity in which the great toe is abnormally abducted, or turned out. In modern life where comfort so often gives place to the requirements of fashion, pointed shoes make hallux valgus exceedingly common. It may vary from the simple hyperadduction which gives comparatively little discomfort to the deformity in which the great toe is outwardly displaced and subluxated, the bursa over the metatarsophalangeal joint is inflamed, forming a bunion, and the head of the first metatarsal bone is markedly hypertrophied. The condition, which is rarely seen in the newborn, may be caused by rheumatoid arthritis, and in fact a dry, inflammatory arthritis is found in nearly all cases which apply for treatment. Injury and systemic disease play very little part as etiologic factors. The great majority of cases, however, may be traced to ill-fitting shoes, either pointed or too short, or too narrow, and

for this reason the deformity is more frequently found in women than men, probably because they more often choose style rather than comfort and their muscles are less able to withstand the deformity effected by pressure over the joint. In China, where the native shoe is pointed and right and left are alike and interchangeable, hallux valgus is practically universal, only the barefoot population being exempt.

The evils of an improperly shaped shoe are not appreciated generally by the laity and too infrequently by the profession. The narrow pointed shoe or one too short for the foot may produce pain causing the wearer to walk on one side of the foot, the foot becomes abducted and a flat or weak foot is the result; the toes are crowded toward the median line of the foot, the great toe is adducted and in turn forces the second toe into dorsiflexion forming hallux valgus and hammer toe. High heels also crowd the foot forward, the mechanism then acting as in the too-short shoe, the great toe is dorsiflexed and adducted, the interphalangeal joints and the great toe deviate outward, thus forcing the first metatarsal bone into inward displacement, its head protrudes and hypertrophies forming the so-called "enlarged joint." The internal lateral ligament of the joint is stretched and the external lateral ligament is shortened and thickened. The tendons on the inner side are lengthened and those on the outer side are shortened. The soft parts over the inner aspect of the joint are thickened and enlarged and include a bursa with a superimposed corn or callus. This bursa becomes inflamed and may suppurate. I have seen cases of cellulitis of the foot arising from neglected bursitis. The great toe being thus turned out, its function as an inward brace to the foot is destroyed and

the elasticity and spring of the step are decreased. Pain is caused by the pressure of the shoe on the acute bursitis, by pressure on the anterior tibial nerve between the shoe and the underlying part of the bone and also on the nerve fibres between the bony outgrowth on the base of the first phalanx of the great toe and the side of the first phalanx of the second. If, as is usually the case, there is associated with the hallux valgus the condition of dorsiflexion or hammer toe of the second phalanx, the rubbing



FIG. 1. Bony projection. A-B, line of excision.

of the shoe or its pressure causes a painful callus or corn over the phalangeal joint of the second phalanx.

Treatment.—Relief can sometimes be obtained in slight cases by wearing proper shoes and right and left socks or stockings with a separate compartment for the great toe. The toe should be massaged and corrected manually several times a day and a soft plug should be worn at night between the first and second toes.

Several operations have been devised for the cure of this condition. Rowlands and

Turner removed the prominent inner half of the head of the first metatarsal bone and sometimes the prominent inner basal angle of the first phalanx, divided the extensor brevis hallucis, and sometimes lengthened the extensor longus hallucis. Tubby chiseled off the prominent head of the first metatarsal bone, divided the ligaments and the extensor proprius pollicis tendon, and replaced the phalanges in position. In cases where the head was greatly hypertrophied and there were marked symptoms of arthritis, he excised completely the head of the metatarsal bone, taking care to remove the



FIG. 2. C, capsule; T, tendon of abductor hallucis to be transplanted.

projecting spur on the outer side of the first phalanx. The sesamoid bones were also removed, as pressure on them subsequently caused pain. After the operation he advised that a wedge of gauze be worn between the first and second toes. Inasmuch as the intact metatarsal bone is a necessary part of the arch of the foot, he found that these patients must use a valgus plate for walking. William L. Keller found that all the old operations for the relief of hallux valgus were unsatisfactory. Resection of the head of the first metatarsal toe, successful in the flat-footed individual, injured a normal arch. He devised an operation which sacrificed no part of the plantar

articular surface. C. H. Mayo recommended that the bursa be interposed between the joint surfaces after excision of the metatarsal head. In other words, the



FIG. 3. B, Bony projection; T, tendon of abductor hallucis; C, capsule.

bursa was transplanted to the space formed by the resection of the articular head of the first metatarsal, the joint surface of the first phalanx being left intact. Von Bergmann resected the base of the phalanx and the head of the first metatarsal. Goldthwaite, Painter and Osgood believe that the Hunter operation of removal of the metatarsal bone is almost uniformly satisfactory when the proper operative technic and after-treatment have been observed. Henry Ling Taylor advised the use of an elongated, or Thomas heel, or shoes straight on the inner side. If operation is necessary he believes that oblique incision of the head of the first metatarsal is as good as any. Royal Whitman considers that the primary object should be to remove the projecting bone. He also stretched and divided tissues that resisted a corrected position.

The cure of hallux valgus calls for a surgical procedure that takes into consideration not only the correction of the de-

formity but the preservation of the weight-bearing function of the foot.

There are in fact three requirements for a successful operative procedure for the cure of hallux valgus.

1. The correction of the deformity.
2. The prevention of recurrence.
3. The preservation of the longitudinal arch.

In correcting the deformity it is rarely necessary to resect a head of the metatarsal bone and I have confined myself to chiseling off the bony exostosis with the periosteum that covers it. This preserves the longitudinal arch and also corrects the deformity.

Author's Operation.—To prevent the recurrence, I have devised and found feasible a transplantation of the tendon of the abductor hallucis from its usual insertion in the plantar surface of the base of the first phalanx to the periosteum covering the middle of the inner surface of the same bone.

After a thoro trial of the various operative methods, this operation has given me



FIG. 4. T, tendon transplanted and sutured; C, capsule sutured.

the best results. The simplicity, ease and safety with which it can be performed, in my opinion, warrant its trial in these cases.

It allows the patient to walk well and absolutely without pain; the great toe remains in perfect position and is naturally mobile; and it does not affect the weight-bearing function of the foot.

Technique.

The steps of the operation are as follows:

1. Under general anesthesia, forcibly move the great toe in all directions, stretching the contracted tissues.
2. Paint the foot and toes with iodine.
3. Make a slightly curved incision, about two inches long, beginning one-half inch in front of the bony prominence on the inner side of the great toe. A semi-circular flap of skin and subcutaneous tissue is dissected free from the bursa and turned down over the joint, so that the subsequent scar will not be at a point of pressure (Fig. 1).
4. The soft parts are retracted. The tendon of the abductor hallucis is now seen under the head of the metatarsal bone and is dissected free from its attachment to the base of the first phalanx (Fig. 2).
5. A flap is now made, including the bursa, capsular ligament, and periosteum, and turned down, exposing the bony deformity to view (Fig. 3).
6. Apply the chisel to the bone at the junction of the condyle and globular head of the metatarsal, and excise the hypertrophied bony projection longitudinally backward (Fig. 3).
7. Irrigate the wound with hot saline solutions.
8. Replace the capsule to cover the raw surface of the bone and fix it with catgut sutures.
9. Subcutaneous division of the contracted internal lateral ligament and fascia.
10. The tendon of the abductor hallucis is now transplanted to the middle of the

inner surface of the first phalanx, and sutured with fine silk, or Pagenstecher thread, to the periosteum (Fig. 4).

11. Close skin in usual manner.
12. A plaster-of-Paris bandage is applied to the foot and toe, holding the toe in a slightly overcorrected position, and allowed to remain for a week or ten days.

After-Treatment.

If the patient carefully observes instructions as to the wearing of properly shaped shoes, no further post-operative treatment will be necessary.

OVERLOOKED CAUSES OF FAILURE TO CURE SYSTEMIC DISEASES BY SPECTACLES.

BY

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Guesses and estimates have been made by many to fix the proportional number of cures of systemic diseases by scientific correction of ametropia. They have proved wide of the mark because of the reserved opinion that the ametropic correction was, or was not, accurately diagnosed; or that the systemic disease was not caused by eyestrain. The strange and striking mistake was the assumption that if the work of the best, or favorite, oculist did not stop the headaches, general nervous diseases, denutritious, hysterias, nervous breakdowns, neurites—the hundred masqueradings of migraine—then the cause was, decidedly, *not* eyestrain. This logic may have seemed sound and beyond controversy, but it was in fact valueless and without significance, because many modifying

and contradicting facts had been overlooked, facts which thru the eyes concern the patient's health, the progress of medicine, and the success of therapeutics.

However impolitic and impolite it may seem, there is one qualification that the statisticians of therapeutic successes and failures need to be reminded of—"the best" and most trusted of ophthalmic surgeons do make occasional errors in prescribing glasses; and this is because they have not learned that traumatism excepted, the vast majority of surgical operations on the eyes could and should have been avoided by the correction of ametropia.

Second only to uncorrected or incorrectly corrected ametropia, dirty lenses are the greatest cause of eyestrain. Combine these two factors and we get the acme of evil. Few patients keep the two bits of glass constantly clean and perfectly polished, as they must be to meet the demands of the eyes and brain, during every minute of the fifteen waking hours of each day. Those may be the worst sinners who have been most seriously warned and shown how to avoid or remedy the evil. And yet it cannot be doubted that oculists not only pay too little attention to the danger; there is usually only a hurried word of command or caution which, instead, should be etched deeper in the mind by repetition, illustration, explanation and warning of the danger of neglect; and this despite the risk of making the patient think the oculist is a crank and exaggerator. Some will forget the advice, and some will fear breakage of lenses. Opticians should be repeatedly advised to second the efforts of the oculist in the matter. It is a good plan to give the patient a label or tag to paste on his mirror with the injunction, *Clean my spectacle lenses, now, and six times every day!* In

many occupations it is more necessary than in others, because of steam, dust, fog, sweat, etc. Many lenses are set too close to the eye-ball and lashes by optician and patient. Sometimes the lashes should be slightly trimmed in order not to set the lenses too far from the cornea. Opticians themselves may be guilty in setting the lenses so they will strike the lashes.

When a patient writes complainingly, I may telegraph "Trouble probably lies in not keeping glasses clean." A visit to the oculist may be necessary. There is a double duty in recognizing the fact that the patient may not be cured of his systemic disease, and that the general physician will not learn the truth about eyestrain and the influence of scientific spectacles in helping him to cure the diseases he is working upon. There is no relief of eyestrain reflexes to the general system with dirty lenses; and if this is true the statistics of the puzzled general physician will be wrong and his labor will be in vain.

Next to dirty and no lenses as a cause of eyestrain and its systemic results is failure to wear the spectacles constantly. Patients, for one reason or another, will leave the glasses off, altho it results in a return of the old morbid reflexes. Every patient should be repeatedly warned, begged, commanded, to wear the spectacles every minute of the waking life. And often they cannot, or will not explain why they have not done so. The third blunder (or crime) is the use of eye-glasses instead of spectacles. Eye-glasses are of little or no use; and, usually increase, rather than lessen, the eyestrain. In trying to make them cling to the base of the nose they will often, or generally, be so placed or displaced that the axes of astigmatism (in scientific refractions) are changed from those determined

by the trial frame and lenses. The oculist who habitually permits eye-glasses will, at least should, suffer in medical reputation because he will miss therapeutic results. Vanity is often a great encourager of eyestrain diseases. The wide-awake general practitioner should not generally permit his patients to have eye-glasses.

If the systemic reflexes present are those often due to eyestrain, and if the patient is over 40 years of age, the cure is conditional upon wearing bifocal spectacles all the waking hours of all days. Sick patients must wear them as well abed as afoot, if awake, altho "not looking at anything in particular." Striped wall-papers are more harmful than the unfigured. No reading should be carried on by the sick or well while abed.

There are some occupations which require a presbyopic correction differing from that of the usual reading and writing distance correction, and nearer than the clearest distance-work. I have successfully ordered trifocal lenses in a few cases.

Instances sometimes occur of astigmatism not at 90° or 180° and the patient (or poor optician) had replaced the dropped out lens "up-side down", thus instantly producing intolerable eyestrain. One of these patients came several hundred miles to have me, in a few seconds, insert the lens correctly, at the proper axis of astigmatism, and instantly ending the patient's tormenting eyestrain.

Another patient living 300 miles away wrote of severe eye-trouble suddenly appearing and continuing for the last week or ten days. Correspondence failed to bring any explanation, and the patient was compelled to make the long journey to my office. I at once found an almost invisible fleck on the outer surface, at the center of

one of the lenses, and precisely opposite the pupil in reading, etc. "Out in a lively wind-storm and sand blew in your face?" I asked. "Yes." A new lens gave relief. For stone-masons I order several pairs of plano lenses, one after the other to be used as "fronts" until flecked by the flying bits frequently striking the face.

Quack opticians nowadays are making the bequacked world wear big round "sunglasses" with colored lenses—"any color you wish," "to protect the eyes." The glass itself is usually a nightmare of imperfection: they press against the eyebrows and cheeks; they are dirty; and they create eyestrain and morbid reflexes. Next week a new evil will be concocted.

Yet another unrecognized source of eyestrain is the universal ignoring of the fact of the normal right-eyedness in the right-handed, and of left-eyedness in the left-handed. From this results handicap in all work and function by glasses that reverse or interfere with the normal ocular and cerebral rightness and leftness governing cerebral rightness or leftness intermediating physical and psychical function and action. It should be made a crime by law to attempt making good left-handed children into bad right-handed ones. And the modern school desks are great makers of lifelong diseases and functions.

There are yet many other unrecognized methods whereby there is great increase in the frequency and hurt of neglected eyestrain in producing systemic diseases. A more general recognition of the power of ametropia to engender these systemic effects would make physicians, general and special, more successful in the treatment of systemic diseases, more hopeful in prognoses, and more correct in their statistics of cures.

ANIMAL POWERS IN HEALTH AND DISEASE.¹

BY

CASPER L. REDFIELD,
Chicago.

Originally, lawyers were employed to get their clients out of the troubles into which they had fallen. At the present time lawyers are hired to keep their employers out of jail. Experience has taught the public that preventive legal medicine is better than a cure.

The old time physician was called on to cure his patient after that patient had become more or less battered by contact with some of nature's operations. Since the days of Jenner, however, we have begun to appreciate the fact that it is just as well to use a little preventive dope when we can. It is fairly probable that boards of health will become more and more prominent in the future, and that the curing of disease will be a continually diminishing part of the physician's business.

I am not here concerned with the employment of some specific vaccine or anti-toxin for some specific ailment, but with fundamental principles involved in warding off sickness of all kinds. When those fundamental principles are fully understood it will probably be found that most specific preventives and remedies are really nothing but special applications of general principles to special cases. I say "most" because draining swamps to exterminate mosquitoes and using an alkali to neutralize an acid represent a class of things which do

not come under the present consideration.

A large proportion of human ailments is due to the actions of microscopic parasites or to the presence of poisons in the system. Disease-producing bacteria are generally present in healthy persons, but those persons remain healthy because their powers of resistance are greater than the powers of attack possessed by the germs. But let a person's vitality fall below some certain point, and disease catches him. Or a person who has become weakened by a long battle with one disease quite easily falls victim to another.

The question of health is a question of power to resist disease. If a person has sufficient power he remains healthy. If he does not, he becomes sick. One of the objects of boards of health is to remove causes of disease so that even the weak will not succumb, but one of the main objects of the individual physician should be to develop the powers of resistance in individuals so that they will not fall victims of those germs which get by the boards of health. The object here is to point out how animal powers are developed, and from a general consideration of that process to indicate how powers of resistance to disease are developed.

The military authorities take our young men and put them thru intensive physical training. That training takes off fat and puts on muscle. According to a statement sent out by the U. S. Government during October, 1918, the men in the training camps had gained an average of twelve pounds per man. As this gain was accompanied by a loss of fat on a considerable proportion of the men, it is evident that the actual gain in muscle is much more than an average of twelve pounds per man.

But the gain in physical strength and

¹ For previous articles on animal powers by Mr. Redfield, see AMERICAN MEDICINE for February and October, 1917, and August, 1918. For a condensation of the facts relating to the inheritance of development acquired by exercise in man and other animals, see Redfield's *Dynamic Evolution*, published by G. P. Putnam's Sons, New York.

power is much more than the gain in weight. Thus, a man who would gain about ten per cent. in weight of muscle would gain about one hundred per cent. in physical power, and the real object of this training is to give the men that power which will enable them to stand up in a fight against similarly trained men. According to the military authorities it requires a year or more of this intensive training to make men physically fit to go to the front.

When a person is worn out by illness the usual physician's advice is to "rest and recuperate." That is good as far as it goes, but "recuperate" means only to regain what was lost, and that is not enough. Disease caught him at the place where he was. He should be carried along to a point at which he has more powers of resistance than he had before, and powers are not developed by "rest." They are developed only by exercise, and to make the matter clearer we will look at it from different angles.

Trotting horses are trained to trot, and are entered in trotting races. It requires the expenditure of a great amount of power to trot a mile at high speed, and the greater the speed the greater the power required. If a horse is continually exercised at the trot (trained) year after year to an extent approaching the limits of his capability of effort, he will continue to gain in trotting power year by year. Part of this is represented by gain in speed and part is represented by gain in endurance. The records show that the part of this gain which is represented by increased speed may continue up to at least seventeen years of age.

Milk-producing organs belong to a class of organs or glands which are somewhat different from muscles. Holstein-Friesian cows are noted for milk production, and when these cows are regularly bred and

regularly milked they continue to increase in milk-producing power up to at least twelve years of age. The records which I had available for investigation did not go beyond this point for the same cows officially tested in successive years.

Not every cow tested shows an increase in milk produced every year. Occasionally a cow falls back and produces less milk than she produced the year previously. The available records do not show the cause of this falling off, but there are probably various causes. One of these may be due to relative idleness during the preceding year which would consist in the cow not being urged in milk production except during the short period when she was under official test.

This would correspond to muscular idleness. It is well known that a sedentary man will lose the muscular strength he had previously. With horses, trotting power will continue to increase as long as intense trotting exercise is continued, but if a horse stands idle more than a few days his trotting power begins to fall off, and continues to fall off as long as he is idle.

The brain is a still different organ, and its work is represented by intelligence, understanding and memory. The Binet system recognizes the development of mental power year by year in children, and in ordinary affairs we recognize the same thing in later life. The older man has better understanding and judgment than the younger man, and understanding and judgment are products of mental power. It requires more mental power to remember many things than to remember a few, and it is not possible for a young man to carry as many things in his memory as an older man can.

This matter of developing power by ex-

ercise and losing it by idleness may be traced in the vegetable kingdom as well as in the animal. Plants which at first are difficult to reproduce by cuttings because they have only a feeble power of producing roots, gradually gain that power by many repetitions and later become very easy to reproduce in that way. And plants which are continually reproduced by cuttings and not by seed gradually lose the power of producing seeds.

Our domesticated plants have developed tremendously their powers of producing fruits, grains, leaves, roots or flowers according to the lines along which their efforts have been directed. But while man has been developing the powers of plants along certain lines, he has been coddling them by protecting them from competition with wild plants. Because our domesticated plants have not been compelled to fight for room in which to exist, they have gradually lost the power to fight, and are no longer able to maintain themselves when deserted by man. Power is developed by exercise and is lost by idleness.

Plants produce seeds. To casual observation, a seed looks like a dead object, but it has the power of sprouting and growing into a new plant like that which produced the seed. That is, the seed has that power provided it is fresh. But let the seed lie idle for one, two, three or more years and that power gradually declines and finally ceases to exist. And a plant which comes from a seed which germinated with difficulty because it is old, is itself weak as compared to a plant coming from a fresh seed.

Organisms, animals and plants, have in them powers of performing certain acts. Those powers are developed by causing the organism to exercise more than some certain minimum amount per unit of time,

which minimum amount of exercise has a definite relationship to the amount of power existing in the organism at the time. Thus, the amount of exercise necessary to keep an athlete in condition to enter an athletic contest is more than that necessary to keep an ordinary person in ordinary condition. Just as we use the term "cold" to represent some degree of heat which is less than some assumed normal, we use the term "idleness" to represent an amount of exercise less than that necessary to prevent a decline or degeneration of the powers of an organism. The rate at which such powers develop or decline is determined by the extent to which the exercise is more or less than that minimum amount, and the total gain or loss is represented by the product of the excess or deficiency and the length of time the gain or loss is continued.

If a man swings Indian clubs and dumb bells he develops strength in the muscles of his arms. If he practices running, then the development is in the muscles of his legs and not in his arms. If a horse is trained at the trot he develops his trotting muscles and not his running muscles. When a cow works hard at milk production it is her lacteal organs which are developed and not her legs. If a man begins by taking a small amount of arsenic and gradually increases the dose, he develops a resistance which soon enables him to take, with impunity, an amount large enough to kill many men. The resistance which he thus develops is to that particular drug, and not to some other drug.

If a man is attacked by a disease for which he has not previously developed a specific resistance he is quickly laid low. His system immediately starts to fight that disease and in doing this draws upon the reserve energy stored in other organs as a

result of exercising them. Because the particular kind of resistance wanted has not been previously developed, the disease at first makes headway and the man grows worse. But as the fight goes on, the power of resistance to that disease increases, and as soon as it becomes greater than the power of attack, the man begins to improve. By the time he has completely mastered the disease he has developed great powers of resistance to that specific disease, but as he has drawn that power from his other reserves, he is otherwise weak. He must then "rest and recover," which means that he must get back into his other organs the equivalent of the power which has been drained away in fighting the disease.

Now it is evident that a man cannot be prepared in advance with the specific resistance required to meet every possible disease which may attack him. The best that can be done is to have the man develop resistance for a few of those diseases to which he is most liable to be exposed, and then to develop a general store of reserve energy which may be called on at short notice to combat any disease which may make its appearance.

When a man exercises his legs he develops power in his legs, and when he exercises his arms he develops power in his arms; but in exercising either of these the development of power is not confined to the legs or arms. When he runs his heart must pump more blood per minute, and that extra work which the heart does develops its power so that it is easier for it to pump the required amount.

To aerate this extra amount of blood the lungs must handle an extra amount of air, and this exercises a whole series of muscles about the thorax. To provide the energy which is to be stored in these various mus-

cles as a result of this exercise, the man must eat more and this in turn puts more work on all of the organs involved in the processes of digestion and assimilation. In fact, physical exercise of the kind employed in intensive military training develops the power of every organ in the body.

When a man is attacked by a disease for which he has not previously developed a specific resistance, the system calls upon the general supply of energy to furnish that needed to fight that disease. If, by physical training, the man has developed a large store of energy in his organs, there is a good supply to be drawn upon and his chances of recovery are good. If, by reason of a strictly sedentary life, the man has only a small store of energy in his body, then his chances of recovery are not good. Hence, regular physical exercise by which a man develops the strength of his organs is a way of putting a man in condition to resist any disease which may come. When we remember that fighting disease of any kind involves the use of animal energy to do the fighting, it will be evident that the general development of physical strength by physical exercise is the only way of preparing in advance to meet diseases of an unanticipated kind.

Let us turn to a consideration of special diseases, and for the purposes of illustration we will take the spirochaete. Our present way of fighting "His Corkscrew Majesty" is to poison the animal as we would poison rats. But is there not a way of developing resistance to this invader?

It is well known that the blood of different species of animals has different reactions, and that parasites like the spirochaete cannot live in blood of all kinds. For example, the cow cannot contract syphilis.

Let us take some other animal, as the rabbit or guinea pig, in which the spirochaete can live, but where he will meet a blood reaction quite different from that of man. Let us inoculate this animal and thereby start a special strain of spirochaetes, and from time to time pass this strain along in series to other animals of the same kind. Living in a new environment and meeting a new blood reaction, this strain of spirochaetes will gradually develop its powers of meeting this particular reaction. Being away from the reactions peculiar to human blood and not exerting itself to meet such reactions, the powers of the spirochaete to meet the human reaction gradually decline as the result of lack of exercise in that line.

After a period of time which we cannot now estimate, a human being is inoculated with this strain of spirochaetes. As the parasites of this strain have lost much of their power to meet the human blood reactions they are able to make only a feeble attack upon the man; but the system of the man fights this attack the same as it would fight any other attack. In this fight the man develops power to resist attacks of this kind, and if the disparity between the powers of the man and the powers of the parasite are sufficient, the spirochaetes are destroyed and the man becomes immune to a genuine attack of syphilis.

While this example of developing resistance is imaginary it is not wholly visionary. Thus, if a cow be inoculated with the virus of smallpox, and the strain be passed along in series thru ten or more cows, then, if a human being is inoculated with this strain the result is cowpox and not smallpox. In other words, if the protozoon responsible for smallpox lives for a time in a blood reaction different from that of man it loses its power of making a serious attack upon

human beings.

A consideration of the history of vaccination gives us some additional information on the development of powers by exercise and the loss of such powers by idleness. When a person is vaccinated he develops the power of resistance to smallpox, and that power is greatest immediately after the completion of the incubation period. But as time goes on the acquired resistance gradually declines until it becomes practically zero in ten years or less. Upon re-vaccination, the power of resistance is again developed, but as time goes on again this newly acquired power again declines.



Physical Therapy

Under the Editorial Direction of Albert C. Geyser, M. D., New York.

CLINICAL DIAGNOSIS AND PHYSIOLOGIC DIETETICS.

There are two reasons why there is such a dearth of literature on this subject. Until very recently the average patient could not force himself to the belief that his physician was entitled to a fee for merely advising him regarding his daily diet. In fact, when the physician realized that perhaps all of the symptoms of which the patient complained were directly traceable to errors in his diet, it seemed necessary to prescribe a placebo.

A sugar pill, with definite directions as to how many teaspoonfuls of water should be used as a solvent, and how many minutes before a certain meal this was to be taken, would accomplish two things: *First*, the patient was pleased with the placebo; *secondly*, his mind was diverted from the real thing to be accomplished—the correction of the diet.

Medical advice as to proper dieting is a commodity much as anything else, the market value depending upon the supply and the

demand. The state of mind of the average patient did not create any appreciable demand, therefore the supply fell into disuse. That is the first reason why there was so little written or said about man's diet.

The second reason depends directly upon the first. In order to prescribe a physiologic diet (and any other is worse than useless) it is necessary to make a thoro physical examination of the patient, the blood, the urine and the feces. The human being is the sum total of the intake of food, the oxidation and the output of the waste. It will, therefore, be appreciated that in order to prescribe a physiologic diet, more time, more real scientific knowledge is required, more genuine work has to be performed, than with any other system of therapeutics. Of course this had to be paid for and as long as the patient was not willing to appreciate this, the physician neglected this branch of his work. This is a perfectly natural consequence and no blame attaches to the physician.

During the last few years, however, all this has changed. The public has awakened to the fact that there is a wide difference in food values and qualities. Pure food law bills have been passed, the Board of Health has caused to be thrown into the streets thousands upon thousands of quarts of milk that did not measure up to the standard, it has condemned large quantities of fruit unfit for the open market, adulterations of all kinds have been prosecuted and the eyes of the public have been opened. Now the educated patient recognizes the value of pure food during health and even to a greater extent during sickness, for it is realized that since man is the result of the intake and the output of foods, his power of recuperation will largely depend upon his food intake.

The patient has learned the value of scientific diets; there is created a demand and the physician is ready to supply that demand.

We are now prepared to examine a little more closely the term "Clinical Diagnosis." For the past few years there has been a tendency to neglect this branch of medicine and the average doctor has gotten into the habit of depending upon the laboratory for the diagnosis. Far be it from me to detract one iota from the laboratory. Some of the most valuable knowledge that we now pos-

sess in medicine could never have come to light had it not been for the microscopist, the pathologist and the chemist. These institutions are valuable aids. They assist us to practice but they do not practice medicine. All of these individuals only see a very small, minute portion of the patient and their report is based upon that small part of the whole. The physician deals with the patient as a whole. According to the laboratory report a patient has a certain disease, yet clinically he shows not the slightest interference with his physiologic functions; the question is, has this patient the disease that the laboratory report says he has? Disease means some disorder, some interference with the bodily functions, a certain state of unrest or some inharmonious action of some one or more of the organs of the body. Thousands of Wassermann examinations are made upon patients who give a positive reaction, yet these same patients never had an initial lesion, neither do they now show any of the signs or symptoms of syphilis. The question is, have they or have they not syphilis, when all clinical manifestations are wanting? Other patients are examined by the Widal reaction for typhoid and declared positive, yet they never felt better than at that particular time. Another has his throat examined for Klebs-Loeffler bacilli; they are found to be present, yet not the slightest inconvenience is manifested by this person. Has this person or has this person not diphtheria? Another patient who is really suffering from chronic Bright's disease, who is emaciated to a degree, so short of breath that he can barely walk; after a few weeks his urine shows hardly a trace of albumin, practically no casts, so according to the laboratory report the urine is getting better, but the patient is dying. A patient is suffering from diabetes mellitus; he is passing large quantities of urine daily, loaded with a high percentage of sugar; his thirst is almost ravenous. The attending physician cuts off all of the protein material and administers opium. When after a few weeks this patient's urine is examined in the laboratory, it will be found less in quantity, nearly free from sugar, while the patient is suffering from diabetic gangrene and slowly but surely passing on. Another patient suffering from the same disease follows his vocation day after day and for the past twenty years has, according to the laboratory, passed

large quantities of sugar and should have been dead long ago, but he seems to enjoy his life just to upset the calculations of laboratory reports.

A patient's sickness, therefore, should be judged clinically first, aided perhaps by the laboratory, and again clinically last. Does the history of the patient have much bearing upon the diagnosis of his disease? From a clinical point of view it does not. If the patient's history does not fit the clinical manifestations it is so much the worse for the history. The taking of a careful personal history should never be omitted.

If it serves no other purpose, it assists the doctor in becoming acquainted with his patient. The first step in the diagnosis is to know your patient's parents, then the brothers and sisters, then the patient and lastly his offspring, if there are any. It would also be well if some competent office assistant could do all this clerical work and not until after the doctor has made a proper physical examination will the previous history of the case become really appreciated. Invariably this should start by noting the electrical reactions along the spine. While these electrical reactions cannot tell us the nature of the lesions, they can and do tell us the anatomical location of whatever the nature of the lesion might be.

The intestinal tract is twenty-four and more feet in length. A lesion in one part would interfere with the physiology of that particular part first and the constitutional manifestations or symptoms would be secondarily in accordance with that. As each and every patient is a law unto himself it follows that each patient will show his personal equation in the symptoms of which he may complain. If the physician makes his deductions from these symptoms as they are interpreted by the patient we can see how easy it would be to arrive at a wrong diagnosis. When, however, we discover that a lesion exists in any certain portion of these twenty-four feet of the gastrointestinal tract, then we are able to reason from cause to effect and not from imaginary effect to a non-existing cause, as is only too frequently the case.

Let us suppose now that our patient clinically shows some derangement with the gastrointestinal tract. The electrical examination shows a reaction from the third to the seventh dorsal vertebra. The branch-

es of the sympathetic fibres from this region are mainly distributed to the stomach. We know from this that whatever the nature of the lesion is, it is located in the stomach, or in other words, there is something abnormal, something interfering with the physiology of that region. You may say that you knew that before making the spinal examination.

Suppose your patient to be a woman complaining of feeling distressed after eating in the region of the stomach, that she frequently raises gas, has eructations of a very acrid nature that seem to burn the back of the mouth, the tongue is coated, the breath foul, and vomiting is a frequent occurrence, has no appetite, in fact has an abhorrence for even the smell of food, is dizzy and suffers from headaches. Naturally such an array of symptoms might lead anyone to suspect some fault with stomach digestion. Make a spinal examination of such a patient and to your surprise find absolutely no reaction from the third to the seventh dorsal, but find a marked one between the first and second lumbar, and you would have a demonstration of reasoning from effect to cause. This patient has something going on in the uterus which may be anything from a pregnancy to an old laceration or even carcinoma. In a case of this kind then, after making the spinal examination and reasoning from cause to effect, we would at once know what reflex gastric symptoms this patient is entitled to. We would then appreciate whether the symptoms were exaggerated or modified according to the personal equation of the patient. Let us take the case now where we had a reaction in the gastric region. Can we tell from this what the nature of the lesion is? No; all that we know is the anatomical location. Knowing the anatomical location we are prepared to investigate the physiology of that region. The stomach has certain physiologic functions to perform. The clinical manifestations when cleared of all personal equation will tell us the kind and the amount of interference.

The principal function of the stomach depends upon the presence or absence of the gastric juice, especially the hydrochloric acid.

He may have an increase or a deficiency of HCl. Besides acting upon the fibrous portion of the animal matter and chemically dissociating the component parts of meats

and certain vegetable substances the HCl after imparting to the prepared foodstuffs an intensely acid reaction tends to call forth the pyloric reflex. Not until the acid food-stuff has been passed onward in the duodenum or neutralized is the pyloric reflex removed so that more food can again escape out of the stomach. Too much acid will keep the pylorus closed too long; the food remains in the stomach, hence a sense of weight and fulness after eating, spasm or cramps, which are caused by the contraction of the organ, cause the expulsion of gas and intensely sour foodstuffs into the esophagus. The patient describes this as sour and burning. Certain foods have a tendency to increase the flow of HCl, while others only in a very minor way call forth the acid.

Foods causing diminished gastric flow.
Fluids: Ordinary water, tea, cocoa and cream.

Spices: Table salt, 0.9% solution.

Solids: Raw egg albumen, especially if dissolved in water, the pure carbohydrates, as sugar and starch, wheat bread, fats, well-cooked meats, sauces without spices, fresh fish, poultry, veal and pork. Cooked sweet fruits, vegetables, as potatoes, rice, sago, asparagus, spinach, cauliflower, and red beets. Soups without extracts. Vegetable soup, oatmeal and purée.

Use plenty of fresh butter and cream.

Foods causing increased gastric flow.
Fluids: All alcoholic and those containing CO₂, as wine, beer, table waters, caffeine free coffee, skim milk.

Spices: All salt concentrations over 0.9%, mustard, pepper, cinnamon, paprika and flavoring substances for soups.

Solids: All roast meats, hard boiled eggs, raw, broiled or slightly cooked meats, the dark meats, salted and smoked meats and fish, meat extracts and meat soups, dark coarse bread, toast. All vegetables unless given in the form of purée.

Use little or no fat in preparing these dishes.

We see here that we have certain foods physiologically indicated, or, as the case may be, contra-indicated in lesions of, or as agents interfering with the physiology of the stomach.

Ulcer of the stomach will thru its own irritating qualities cause an increase in the

flow of gastric juice analogous to rare or raw meats.

The motility of the stomach is augmented by the presence of acid, causing the well-described pain by the patient as gnawing, which is satisfied by eating small quantities of food and made worse when large quantities are taken, especially if they are of the contra-indicated kind.

In case of insufficient hydrochloric acid, all such substances that require large amounts or are digested in the stomach are contra-indicated. Since it is the function of the stomach to dissociate it seems reasonable that all coarse vegetables are contra-indicated, while all the finely prepared substances are physiologically beneficial.

AN UNUSUAL CASE OF VENEREAL INFECTION IN THE FEMALE.

Mrs. R. admitted exposure to infection, presented herself with a well-marked swelling just inside the *labia majoris* on the left side. There was no discharge from urethra, vagina, nor ardor urini. The gland of Bartolini was tender, but no fluctuation could be elicited. A vaginal tampon was inserted above the gland to prevent lateral pressure, thereby adding much to the comfort of the patient. The tampon was removed daily, followed by a hot douche.

After the eighth day there was perceptible softening with localized fluctuation. The abscess was opened at its lowest point. In the course of one week recovery had taken place. About this time the patient complained of sudden "gushes" of vaginal discharges. Upon the insertion of a bivalve speculum the *os uteri* was seen to be exuding a profuse, tenacious, yellow, muco-purulent discharge. With a cotton swab a smear was made and submitted to the laboratory. The report was "a diplococcus, intracellular, Gram negative, morphologically typical of gonorrhea."

At no time was the urethra involved, neither was there a vaginitis nor any physical discomfort beyond these "gushes".

Treatment. A uterine electrode was inserted into the body of the uterus; twelve hundred milliamperes were allowed to run for thirty minutes from a diathermia appa-

ratus. The patient was instructed to use a hot vaginal douche mornings and evenings. After the sixth treatment, the discharge had almost ceased, and the electric treatments were discontinued. The patient continued the hot douches for another week when she was entirely free from discharge, and has remained so for the past four weeks. A smear taken from the vaginal walls proved negative as far as gonococci were concerned.

Conclusions. This was a case of gonococcal infection, with suppuration of Bartholini's gland. There were no clinical signs of urethritis nor vaginitis at any time, altho we had a uterine canal infection with a copious discharge. Since the gonococcus dies in a temperature of 104° F., diathermia was employed in the acute stage of the disease with a quick and perfect recovery. Neither internal nor external medication was used except the heat mentioned.



Rational Organotherapy

The Pituitary Gland in Epilepsy.—In a recent issue of *Archives of Neurology and Psychiatry* (Aug. 1, 1919), Tucker, of Richmond, Va., in a paper on the Rôle of the Pituitary Gland in Epilepsy, expresses the opinion that he believed that convulsions, whether pathologic and called epilepsy or otherwise, were symptoms of underlying diseased conditions, and therefore were organic and not functional. Among these underlying conditions was a secretion of the pituitary gland. He agreed with Cushing that the pituitary secretion gave a substance which had to do with cortical cell stability, and that when the secretion was diminished or absent convulsions might ensue. Hypopituitarism was divided into two types: *First*, the congenital or chronic type, in which the patient gave evidence in the past of the usual syndrome of the hypopituitarism, and might have convulsions as he approached adolescence. The *second*, or transitional type, might present clinical evidence of normal or even hyperpituitary secretion in the past, but as adolescence approached

diminished secretion was shown by lack of perspiration, increase in fat, increased sugar tolerance, slowed pulse, lowered blood pressure, and at times convulsions. The radiographic findings in the cases reported confirmed the clinical observations. The first type showed a small fossa with enlarged processes and roughened sella, and the second type enlarged fossa with large processes and roughened sella. These bony outgrowths encroached on the fossæ. A number of cases was reported and the satisfactory result of pituitary feeding was shown.

Blood Regeneration and Bone Marrow Activity.

—Altho the length of life of the red cells of the blood is still unknown, there is no doubt, claims an editorial writer in the *Jour. A. M. A.* (Aug. 16, 1919), that they undergo disintegration sooner or later. Sometimes their destruction is hastened by disease; sometimes the erythrocytes are lost to the body thru hemorrhage. It becomes important at times, therefore, to learn to what extent reparative processes are taking place and whether red cells are being returned to the circulation. Microscopic examination of the blood during rapid regeneration of the erythrocytes reveals the presence of nucleated forms. Nucleated red cells have therefore been taken as "an inevitable feature of rapid blood regeneration." As Macleod has pointed out, however, changes in the mode of red blood cell formation may be responsible for the nucleated forms.

Some time ago Warburg showed that whereas normal human blood consumes very little oxygen, blood such as that of birds, which contains nucleated erythrocytes, may evince a high oxygen absorption. Morawitz has observed, however, that even in mammals blood obtained during the regeneration following an anemia may show an absorption of oxygen that cannot be accounted for by nucleated cells or by substances possibly dissolved in the plasma. The explanation seems now to have been furnished by Harrop of the Medical Clinic at the Johns Hopkins Hospital, Baltimore. Starting with the assumption that the red cells in the blood which appear reticulated after certain methods of histologic staining are "youthful erythrocytes," Harrop has

found that blood which contains abnormal numbers of them has an oxygen absorption proportional to the percentage of reticulated cells present. These two factors are interdependent; according to Harrop, both are due to the presence of abnormal numbers of youthful cells and both are probably rather accurate indicators of functional regeneration in the bone marrow and of the amount of blood regeneration. According to this latest American research, normal mature human erythrocytes have no oxygen consumption measurable by present methods. Furthermore, when it is measurably increased in the blood of individuals with anemia, the oxygen consumption has no direct relation to the severity of this symptom, and no constant relation to histologic abnormalities in the erythrocytes other than increases in the number of reticulated cells. A large proportion of all the non-nucleated red blood cells in the bone marrow is reticulated. Accordingly, the increase in the number of these forms, along with increase in the hemoglobin of the blood and a greater oxygen consumption thereby, is indicative of increased activity of the bone marrow.

Irritable Heart.—Satterthwaite writing in *Therapeutic Gazette*, (May, 1918) says that according to Bram (*N. Y. Med. Jour.*) patients with thyroid disease are amenable to non-surgical treatment in 75 per cent. of all cases. He uses quinine hydrobromide, iron, arsenic, phosphorus, and the suprarenal gland.

On the other hand, in such instances some recommend the X-ray or radium. The consensus of opinion appears to be, however, that while their action will at times be beneficial, they may aggravate the symptoms. The X-ray has caused death. All agree that rest and hygienic treatment should precede any form of treatment that may be dangerous to life.

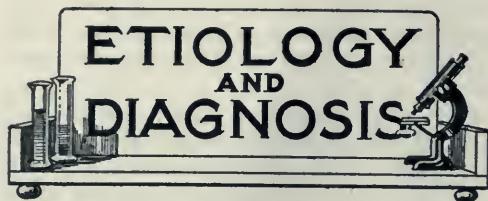
As to operative measures, it should be remembered that other ductless glands are apt to be involved, so that the removal of the thyroid or any part of it may fail to reach the source of the disease. In case there is an associated thymus disease, as shown by the peculiar nodular growths in the mucous membrane of the upper air

passages, or in the skin of the nose, with or without symptoms of obstruction, there is call for the removal of the thymus or a part of it.

It is manifestly important, therefore, in cases of irritable heart, to examine for the symptoms of disease of the ductless glands, so as to institute the proper remedial measures.

Pituitary Treatment in Female Diseases.

Dalché (*Revue Mens. de Gynécologie et d'Obstétrique*, May, 1919) discusses the use of pituitary by the mouth, preferring the dry extract of the whole gland in doses of two to four cachets a day of 0.10 gm. each. This treatment can be applied in every case of metrorrhagia, and it often will give good results. But success depends on its being kept up perseveringly for weeks and months with bleeding fibromata, diffuse fibromatosis and sclerosis of the uterus, retrodisplacement with congestion, virginal metrorrhagia, intermenstrual dysmenorrhea—whenever, in short, the aim is to modify a condition of long standing. For example, a young girl with too frequent and too profuse menstruation should take the pituitary extract every day for a month, then for two weeks each month, beginning the week before the anticipated menses and continuing till the close. The other two weeks he orders 10 drops of tincture of hamamelis in a little water before the two principal meals. In case of a fibroma he alternates the two pituitary weeks with other organotherapy, and may conclude with roentgen treatment. Congestions and excessive functioning of the ovaries or thyroid may likewise benefit by pituitary treatment, as also certain types of headache, even those suggesting false brain tumors, with exacerbations at the menstrual periods. It seems in these cases as if the endocrine upset had induced congestion in the pituitary body and that this congestion was what causes the headache. The action of pituitary treatment is not restricted to the genital organs; it may attenuate and suppress the hot flushes and sudden sweats of the menopause and other symptoms of ovarian insufficiency. It seems to promote sleep, appetite and diuresis, and combat asthenia.



The Diagnosis of Acidosis.—Much has been written on acidosis, says a writer in *Modern Medicine* (May, 1919), but apparently the need for more and continued instruction still exists. Macleod gives a fairly complete readable discussion of the present status of this illusive phenomenon. In particular he calls attention to Sellards' simple test, *viz.*, under normal conditions only five grams of sodium bicarbonate can be taken a day without making the urine alkaline. When the alkaline reserve, however, is seriously depleted, that is, when acidosis exists, large quantities of bicarbonate, even as much as 100 grams a day can be taken without making the urine alkaline. This test has been found of particular value in the diagnosis of acidosis accompanying certain forms of renal disease. He concludes that Sellards' method is no doubt the best test of acidosis at present available in routine clinical work.

Tuberculin in Diagnosis.—Bergmann (*Deutsche medizinische Wochenschrift*, Jan. 16, 1919) argues that it is possible with the tuberculin test to distinguish between inactive tuberculosis which is on the point of flaring up and tuberculosis which is slumbering. For example, a man with indecisive lung findings has slight fever. If the titrated skin tuberculin reaction is positive, then he had better be kept under close observation. If it is negative, then the fever must be due to other causes.

Carcinoma of the Gall-Bladder.—Gallstones are an important item in the etiology of carcinoma of the gall-bladder. Deaver (*Med. Record*, July 12, 1919) says that in line with modern preventive measures it becomes a vital necessity to prevent if possible the formation of gallstones, or failing this, to avoid the possible consequences which the irritation of their presence may cause and remove not only the gallstones but the primary source of infection that has given rise to their formation.

Bronchial Asthma.—Bronchial asthma is supposed to be in part the result of the sensitization of the patient to the proteids of bacteria, foods, and miscellaneous substances, according to Thro in *N. Y. Med. Jour.* (Mar. 22, 1919). For example, Walker states that in his series of patients studied fifty-five per cent. were sen-

sitive to some protein and the non-sensitive were probably due to chronic bronchitis, cardiorenal complications, or emphysema. By some investigators it is thought to be a straight infection with bacteria. Hay fever, which is, as is well known, closely related to asthma, is supposed to be due to sensitization to the pollen protein of certain members of the vegetable kingdom. This has been proved experimentally by Koessler. Urticaria, eczema and angioneurotic edema are likewise supposed to be due in part to sensitization to various proteids.

Recent investigations have thrown some light on that obscure condition called bronchial asthma, with the profitable result that such investigations have led to the alleviation of the symptoms of this distressing disease in a number of patients. While speaking of therapy it is hardly necessary for me to add that before the patient is treated for bronchial asthma it must be ascertained that the symptoms are not due to cardiac, renal, pulmonary or pituitary disease. Due consideration must also be given to the idea advanced by Pottenger, as to the relation of the vagus to the disease. Recent investigations have added confirmatory evidence to the statement made by Meltzer and Wolff-Eisner that asthma is to a great extent a manifestation of anaphylaxis or allergy. It was found, that in the lungs of animals that had died of anaphylactic shock, there was a contraction of the bronchioles and it is supposed that a similar condition exists in the asthmatic spasm. The nerve center controlling the muscles in the bronchioles in asthmatics is in a state of unstable equilibrium. These ideas are more acceptable than the idea that asthma is due to a congestion of the mucous membrane in the lungs.



The Prevention of Influenza Pneumonia.—The following exceedingly interesting and sententious communication by Dr. J. M. W. Kitchin appears in the *Medical Record* (April 19, 1919). "Notwithstanding the natural medical antipathy to advocating anything new in the way of treatment that is not backed by accepted theory, I venture to offer a suggestion in view of the widespread acknowledged helplessness in preventing pneumonia complicating influenza.

I studied medicine because of an inherited tendency to many repetitions of attacks of bronchitis. I probably have had at least two attacks a year ever since I can remember, many of which have been of influenzal origin, and innumerable threatening congestions. When I was a very young man, the late Professor Loomis wrote me a prescription containing

opium and Hoffman's anodyne. In the course of years I have modified the excipient with an apparent energizing influence in the sum-total effects secured. I have never had my pharmacist make up the prescription given below, preferring to produce the effect of my own compounding. I have all the constituents made for me separately, and I do the compounding. It requires a period of holding and blending to secure the best result. There is no question that my life has been prolonged by this medicine.

The most attractive theory I have read as to the causation of pneumonia complicating influenza is that the intensity of action in the larger air passages and the character and amount of the mucoid product act, thru gravitation downward, to clog the air cells, and hence incite the pneumonic process. If this is so, why not do as I personally have done hundreds of times to myself, and secure sufficient sedation of the respiratory tract to moderate at least the intensity of the morbid action, and frequently entirely stop it? It seems probable that the same influence which relieves pain and discomfort also depresses vital activity in the invading bacteria, as well as in the cells of the mucosa. Hoffman's anodyne of the best makes is soothing, and is nearly all exhaled thru the respiratory structures. In some cases it is the only agent that will go directly to and favorably affect the smaller air passages. In my bad attacks I also use active counterirritation. Camphorated oil on the nose externally is the best 'cold in the head' remedy that can be used. Mustard pushed to even a blistering effect, applied at various areas of the chest, is vastly helpful. Breathing cool air, but not so cold as to be irritating, is also helpful. Usually if enough of the sedative is given, circulatory activity is sufficiently repressed, without requiring rest in bed. The late Dr. Alonzo Clark used to commend to the consideration of his classes the maxim that 'God shall be feared and the intestinal tract be kept patent.' He also used opium for peritonitis with beneficial results.

I submit the suggestion for what it may be worth. Light attacks may not kill when severe ones would. It may be worth trying somewhat extensively. The prescription follows:

Rx	Grams
Tinct. opii.....	4
Spts. ætheris comp.....	17
Glycerini	32
Syr. pruni virg.....	32
Syr. tolutani	21
Syr. picis	10
Syr. glycyrizæ	10
M. Sig.: Teaspoonful every three or four hours.	

This formula costs too much to permit its being used as an advertised nostrum; but if some manufacturing pharmacist could hit the knack of compounding it so as to secure the right effect, it could be dispensed under medical direction. After all, the profession willulti-

mately be called on to direct the consumption of all narcotics and stimulants."

Management of Constipation Among School Girls.—Brydon (*Virginia Medical Monthly*, June, 1918) calls attention to the frequency of constipation among otherwise normally healthy school girls, and ascribes it to five causes, *viz.*, dietary indiscretions, insufficient exercise, insufficient ingestion of fluids, lack of regularity in defecation, and cathartic drugs. The first of these consists in the ingestion of enormous amounts of sweets, pickles, crackers, and other prepared foods looked upon as a necessary adjunct to the monotonous school fare. Most of this material is readily assimilated and lacking in residue. In the treatment, a list of foods rich in cellulose is given, *viz.*, cabbage, tomatoes, onions, spinach, corn, string beans, lettuce, cucumbers, asparagus, wheat and rye bread, and the coarser cereals, oatmeal, corn meal, and hominy. Bran is a valuable help and should be used as an addition to cereals, breads, etc. Some fruit should be taken at each meal, if possible, and before retiring. To be avoided, in a general way, are excess of eggs or milk, sweets, pastries, nuts, cheese, crackers, new white bread, hot bread, toast, macaroni, rich stews and gravies, most chafing dish products, condiments and soda fountain drinks. The reasons for these dietetic recommendations are carefully explained. As regards lack of exercise, most girls, in spite of having gymnasium work twice a week, lead almost sedentary lives. A half hour walk, covering a certain distance, must be added by the girl patient in her daily schedule. Invariably these patients do not drink enough water. The necessary corrective suggestion is best effected in the form of questions, bringing out the fact that the body loses twelve glassfuls of water a day, while the fluid in solid foods only makes up about four. Irregularity of defecation is overcome only by impressing the proper mental attitude on this point on the patient. As regards drugs, their dangers should be explained as impressively as possible, and the girl required always to report if she needs a laxative, as well as at regular intervals. In those already inured to the laxative habit cascara is given, three minims three times a day, increased one drop daily until a good daily movement results, then reduced one drop daily to complete cessation. Suppositories, enemas, abdominal massage and calomel are to be avoided.

The Value of Yeast in Gastro-enteritis.—Yeast has been used in the treatment of gastro-enteritis of adults and infants by Drs. Thiercelin and Chevrey (*Rev. de therap. med.-che.* 1899, pp. 797-803) with marked beneficial results. They gave a suspension of yeast to children by rectum, 2 or 3 times a day after the rectum had been washed out. The children were held by the nurse in such a position that

they could not expel the suspension. Food was withheld until the fever fell.

Cures of chronic gastro-enteritis were treated the same way. In one case of dysenteric diarrhea (in an adult) that had resisted other treatment for more than a month, the remedy was used with success within 48 hours after first administration. The adult cases were given yeast by mouth as well as by rectum. (One case in an adult was a case of muco-membranous enteritis, which improved very much under yeast treatment.)

It stands to reason that yeast will exert a greater influence on the gastrointestinal tract when it is given by mouth than when it is given by rectum alone. Yeast also has a beneficial effect on infants with gastro-enteritis when it is given by mouth. This is shown to advantage in the results obtained by Sittler in the treatment of infants with gastro-enteritis with yeast by mouth (*Munch. med. Wochenschrift*, 1906, No. 63, pp. 1761-1762). Sittler's plan was to cut out milk from the diet, to substitute weak tea or albumin water and gradually to work up to heavier preparations. The yeast was given in sweetened water. When necessary the bowels and the stomach were irrigated and other medicines were employed. Under yeast treatment the odor of the stools became less objectionable, and the number of stools was diminished. Vomiting soon ceased. In some cases a cure was obtained when yeast alone was used. In other cases yeast had a beneficial effect when calomel, bismuth, or irrigation had not produced satisfactory results. The weakly acid reaction of the stools favors the action of the yeast. In one case only did the diarrhea become worse under yeast treatment. The treatment can be satisfactorily combined with the administration of bismuth or tannalbin.

In a more recent publication Sittler investigating the stools of infants has determined that yeast with lactic acid and lactic acid bacilli favors the growth of the bacillus bifidus (a favorable organism) in the stools. He states that treatment with yeast, lactic acid, and lactic acid bacilli may be combined to advantage with treatment with the astringents.

The Rapid Cure of Scarlatina.—Mangitta (*Giornale di Medicina Militare*, Jan. 31, 1918) describes his treatment of scarlet fever with a combination of chlorophenol, quinine and camphor. Two injections are sufficient in a case of moderate severity, twelve to twenty-four hours apart, given preferably intramuscularly in the gluteal region. Every feature of the disease is ameliorated and the course aborted. Mangitta considers that this method changes the treatment of scarlet fever from a passive to a markedly active one, and reports in detail seven cases to support his assertions. A marked feature of this method is the almost immediate subjective feeling of well-being, with a rapid drop in temperature.

Some Clinical Aspects of the Recent Influenza Epidemic.—The epidemic thru which we have recently passed says Eshner (*New York Med. Jour.*, Feb. 1, 1919) was noteworthy for the relative rapidity of its invasion, the wide extent of its distribution and the comparative suddenness of its decline. It seemed comparable to a conflagration that burned fiercely until it had consumed the inflammable material within its sphere of action. About eight per cent. of the population was attacked by the disease according to the author, with a mortality of between eight and ten per cent. Many mild cases were given scant or no attention. As with infectious diseases in general the prevalence was greatest where congestion was densest and human intercourse most intimate. It seemed as tho adults between twenty and forty suffered most, altho children by no means escaped, while old persons were attacked in smaller number. Negroes appeared to exhibit little susceptibility to the disease. The number of pregnant women attacked was striking, altho the proportion may not have been excessive. The association was not a happy one. The exact nature of the disease will have to be established by the bacteriologists.

Clinically the disorder took the form of an acute infective process of which the respiratory apparatus bore the brunt in the vast majority of cases. The onset was in general insidious rather than abrupt, with chilliness, commonly repeated in the course of the attack. Backache, headache and general pains of varying degree of severity were early symptoms. The temperature course may fairly be described as erratic, and did not always bear a direct relation to the severity of the other symptoms. Sometimes it was high (105°) in an apparently mild case, while it might be moderate in the presence of conditions that seemed grave. Again it would fluctuate widely in the course of even a few hours. As a rule it subsided within a few days, to rise again after an afebrile interval. Not rarely it ascended again from several to many days after the attack had apparently come to an end, eventually declining by lysis, sometimes over a protracted period.

In some cases there was coryza. Nosebleed was not uncommon and at times profuse and repeated. In almost all cases there was cough, altho not always at the beginning. Often this was most obstinate and distressing, interfering with sleep, at times from its violence productive of severe pain in thoracic and abdominal muscles, and in some instances inducing vomiting. In many cases there was persistent complaint of a sense of rawness of the throat and behind the sternum. Expectoration was often difficult, yielding a small amount of tough mucus. Quite generally the sputum was blood-tinged, often resembling watermelon juice, at other times being rusty, and in some instances consisting almost wholly of pure blood. Not rarely there was sharp pain in the chest, aggravated by breathing or other movement. Frequently there was dyspnea, at times of great intensity and occasionally attaining to the degree of a

veritable air hunger. Cyanosis was common and in some instances quite pronounced. The appetite usually was impaired, at times wholly lost. Nausea was common and vomiting frequent. Usually the bowels were constipated. As a rule sleep was disturbed, often to a marked degree.

In most cases urinary excretion appeared to be normal, but in a number of instances the amount voided was markedly diminished and in some instances there was total anuria for as long as twenty-four hours and more. There was little opportunity to examine the urine during the course of the attack, but examinations made at later periods failed to disclose evidences of nephritis. In one case there was hematuria.

Sweating was a noteworthy and almost distinctive feature, and it could not always be attributed to the medication. In some cases it appeared early and was repeated throughout and even beyond the duration of the attack. Not rarely it was quite profuse and patients frequently were literally drenched in the transudation. Delirium occurred frequently and sometimes was quite active. Some patients in this state got out of bed despite attempts at restraint and walked into the street in their bedclothes and thus precipitated a fatal issue. One case presented symptoms of meningitis and after apparently responding to treatment the patient died finally after many weeks. In some cases depressive psychoses followed in the train of the disease. Naturally there was, as a rule, considerable loss of weight, and the ensuing debility lasted for a considerable period of time. In mild cases the disease came to an end in from three to five days. Sometimes this period was followed by a remission or intermission, upon which a second febrile period developed. In this interval many patients were tempted to get up from bed, with resulting intensification of the previous symptoms and aggravation of the general condition. Also this period not rarely marked the onset of symptoms of pneumonia.

The physical signs with reference to the lungs were extremely variable. In some even when the sputum was blood-tinged the physical evidences of pneumonia were not conclusive beyond peradventure of doubt; nor did the subsequent course of the disease bear out the suspicion of pneumonia. In many cases there were slight or more extensive areas of impaired resonance in one or both lungs, with roughened or bronchial breathing, while in a smaller number there were the percussion dulness, the bronchial breathing, and the bronchophony of lobar pneumonia, often associated with the friction-rub of pleurisy and at times with the egophony of an effusion. In some cases the two forms of pneumonia appeared to be associated. Tinnitus aurium and impairment of hearing were observed in a number of cases, in some apparently unrelated to medicamentous origin. The absence of articular and cardiac complications, endocardial and pericardial, was noteworthy. The foregoing statements are based on observations made in some 400 cases, all seen in private practice.



The Influence of the War on Medicine.—The Great War has shown the value of team work, specialization, antiseptics, new methods of treating wounds, fractures and shock; better methods of killing parasites, particularly the terrible louse; and added emphasis has been given to the importance of sanitary measures looking to the prevention of typhoid and other filth diseases (*Canadian Jour. of Med. and Surg.*, May, 1919).

Fine progress has been made in the treatment of wounds of the heart and lungs. The lesson of early investigation, by operation, of wounds penetrating the abdominal walls has been learned. The treatment of the various war neuroses underwent considerable change during the progress of the war—for the better.

In how far Dakin's solution, Wright's salt solution, Morrison's Bipp, and Di-chloramine T will supersede bi-chloride, carbolic acid, and iodine in the treatment of infected wounds, remains to be seen.

Marked advance has been made in orthopedic work and in plastic surgery, particularly of the face in all its parts.

Much good work has been done in lesions of the central and peripheral nervous system, and added light has been thrown on many mental conditions.

We hope that many of our fighting brethren found time to make notes of their more interesting cases, and that they will elaborate these notes, and that from time to time they will be published in the medical press for the benefit of the profession at large.

Some Things to Remember About Rubber Gloves.—*First.*

They are perishable articles and costly.

Second. The life of the glove can easily be shortened by just a little every-day carelessness.

Third. Before a nurse is given any responsibility about the care of rubber gloves, she should be instructed as to the cost, the proper way of putting on and taking off gloves, proper methods of sterilization, etc.

Fourth. Teaching what not to do in handling rubber gloves is important.

Fifth. Experience has shown that the life of the glove is prolonged by sterilizing by boiling in water as compared to sterilization by steam under pressure.

Sixth. Grease and oils cause softening of the rubber.

Seventh. The general care which a nurse gives to gloves when not in use—before and after operation—has almost as much effect in determining the length of life of the glove as

the wear and tear given by the surgeon. If gloves are wet before removing from the hands they are less likely to tear.

Eighth. The best way of putting a patch on rubber gloves should be known by every nurse.

Ninth. Uses for worn-out rubber gloves should be demonstrated to nurses early in their course. An ingenious operating room nurse found a dozen ways of utilizing the rubber in the glove, after its days of usefulness in the operating room were over.

Tenth. Every nurse should be able to write a concise complete answer to the following questions: What are rubber gloves used for? How should they be prepared for use? What special points about rubber gloves should a nurse observe before, during and after operation?

A pad for protecting the eyes during anesthesia was made of cotton, covered with rubber cut from the back of a glove, the cotton and rubber being sewed together.

A cover for a saline flask.

Rubber bands of varying widths cut from fingers of rubber gloves have found many uses in the hospital.

Protectors for wide-mouth bottles containing surgical dusting powder, also for test tubes. Finger-cots of varying sizes may be secured by cutting off the fingers of rubber gloves which are no longer useful in actual surgery.

Strip can be cut for subcutaneous drainage to be used instead of gutta percha or rubber dam.

Patches for mending gloves and bath caps, also hot water bottles.

A protector for a gall-bladder drain. Lastly the pieces left are collected and sold as "old rubber."—*The Trained Nurse*, May, 1919.

Incompatibility of Quinine and Aspirin.—Dr. Saenz de Santa Maria Y. Marron, writing in *El Siglo Medico*, and quoted by the *Medical Record*, relates that during a year's experience in the use of aspirin he has learned that the combination with quinine is an undesirable one. In giving remedies in combination we expect synergism in action, a result superior to that obtained by uncombined use. Failure to obtain a heightened effect is itself sufficient to do away with the combination. But in such combinations we may get failure of a higher type—either refusal of one remedy to act or else actual untoward result of some kind. The writer states that his expectation was often defrauded, and cites examples. There was one patient who was getting 25 cgm. of each drug three times daily, and who showed on the following day a severe tachycardia, restlessness and adynamia. The case was one of influenza, in which in the author's experience, the heart frequency is by no means unduly great, by reason of some action by the grip toxin on the vagus. The possibility of an idiosyncrasy was dashed by noting analogous behavior in a series of other cases. The problem was taken to the pharmaceutical laboratory, and the evidence

appears to show that under the catalytic action of aspirin in the stomach or blood the quinine was changed to a toxic derivative which was termed quinotoxin. This latter, an insomer of quinine, appears to be known to chemists, and it has the reputation of being able to cause death. The brevity and vagueness of the article prevent a complete visualization of the author's notions on the subject, but he is opposed to polypharmacy on the principle that while one remedy may potentize another in some cases, there is also a danger that one remedy can denature another into a toxic substance. The lessons are plain, for every alleged synergistic combination must have this possibility excluded before use on man, and new substances must not be carelessly mixed with old ones.

NEWS NOTES AND ANNOUNCEMENTS

A School of Occupational Therapy.—The first number of the *Bulletin* of the St. Louis School of Occupational Therapy is being distributed among those who are likely to spread the knowledge that instruction in occupational therapy is being systematically conducted in St. Louis. The course will prepare students to teach occupational therapy to physically and mentally handicapped, and convalescents in public and private institutions, and to meet the demand of the government for reconstruction aides in military hospitals so long as that need exists. The next class opens September 16, and includes sixteen weeks of craft work and twelve weeks of hospital practice. The cooperation of the Barnes Hospital, the City Hospital, and the City Sanitarium offers ample opportunity for practical instruction. This is a splendid opportunity for young men and women with a high school education and the instinct of helpfulness to enter a field that will prove congenial and profitable.

Medical School in China Opens.—The Peking Union Medical College, Peking, China, which has been built under the direction of the Rockefeller Foundation, will open for the instruction of students in October, 1919. The college will give a four years' course in medicine and an additional year of special work in hospitals or in laboratories. The school will be coeducational. There is also a premedical school offering a three years' course preparatory to admission to the medical school. This premedical school was opened in September, 1917.

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National Medical Licensure.—The federalization of service for war purposes of more than 30,000 physicians revealed many weaknesses in our methods of medical education. The experience of the Army and Navy is suggestive of various inequalities in licensure as practiced during the past decades in the various states in the Union. We have repeatedly called attention to the necessity of a standardized examination for medical practitioners thruout the United States.

The National Board of Medical Examiners seeks to conduct examinations, with the assistance of state examining boards, for graduates in medicine who are candidates for licenses to practice medicine. According to Walter L. Bierring, *Modern Medicine*, July, 1919, the certificate of the Board is accepted for admission into the Army, Navy, and Public Health Medical Service without further mental examination. Practically two-thirds of the State Boards of Medical Examiners "have already signified their acceptance and endorsement of the Board's certificate." This degree of progress is most encouraging, and probably within the next few years, some of the barriers will be broken down and a single examination, held in various centers of the country, will suffice to provide an adequate test of the capability of those applying for licensure.

The requirements for admission to examination by the National Board of Examiners, include a certificate from an accredited four-year high school, two years of pre-medical college work, including at least one year each of chemistry, physics, and biology, and a reading knowledge of a foreign language, graduation from a so-called Class A medical school, and one year of interne service in an approved hospital. The examinations thus far conducted provide for a short written examination in various subjects, combined with a practical test, the examinations covering a period of six days with a Sunday intervening to provide for rest.

Endorsement of the Plan.—The plan has been favorably reported by R. W. Powell, Registrar of the Dominion Council of Canada and Colonel Charles Dercle, who represented the French Medical Service in the Surgeon General's office, during the period of war activities.

While thus far the National Board of Medical Examiners has not been successful in its aim to unify and standardize medical examinations thruout the United States, it has recognized the necessity of an international standard of medical practice. It is therefore seeking the endorsement of the examining bodies of France, England and Italy with a view to receiving their co-

operation, and eventually arriving at an international recognition of medical standards of American medical practice as represented by their plan of examination.

Certificates have been granted to those who have given adequate evidence of their capability in the theory of practice of medicine thru the successful completion of comprehensive and essentially practical tests covering medicine, surgery, obstetrics, chemistry, physiology, clinical microscopy, bacteriology, hygiene, applied anatomy and the surgical specialties.

Considering that the National Board of Examiners dates its origin to 1915, it is patent that its accomplishments thus far are fully commensurate with the importance of this subject, considering the interference with its development incidental to military activities. While the original intention was to hold examinations in Washington, circumstances have demonstrated the impracticability of this procedure, and efforts have been made to hold examinations in the larger medical centers, such as New York, Chicago and Philadelphia, while during 1918 examinations were held at the Medical Officers' Training Camps at Fort Riley, Kansas, and Fort Oglethorpe, Georgia. It would appear to be desirable to distribute the centers of examination more widely, so that there might be at least one center in each state and territory of the Union. In order to popularize the movement, it should be made as practicable as possible, and be well suited to the convenience of the young men whom the National Board of Examiners hopes to interest because of the advantages to be derived by holding a single license to practice, recognized thruout the United States and probably Europe.

Some questions may arise as to the difficulties involved in this plan, but the com-

plete success of the movement will be determined by the facilities afforded those desirous of taking advantage of the universal test. State reciprocity will gradually follow the introduction of a type of examination which proves itself acceptable to the various State Boards of Medical Examiners. An incidental benefit will accrue thru raising the standard of medical education in those states willing to grant and receive reciprocity because of the provision for the graduation of applicants for national licensure from a Class A medical school. Similarly, the development of a fifth year devoted to interne service in an accredited hospital will gain adherents, if it be made an included item, imperative in medical education previous to licensure.

Possible Objections.—No doubt considerable objections will be raised because of these two factors which should appeal to those interested in the improvement of medical education in the United States. The apologists for lower grade medical schools and the appeals of those solicitous for the welfare of the poor but honest graduate, for whom a period of internship might prove a hardship, are likely to interfere with the rapid growth of a powerful sentiment in favor of a single type of examination as proposed by the National Board of Examiners. Similarly, many will claim that failure will deprive an individual of the due and proper rewards of time, money and energy expended in securing medical training, regardless of the fact that the general public deserves to be protected against those who have gone to medical school for a full period of time, and, because of low standards, have succeeded in passing examinations, but who are, to all intents and purposes, incapable of the efficient practice of

medicine. Naturally, there will be opposition by medical institutions, other than those belonging to Class A, unless they possess the inclination and the funds to better their plants, equipment, personnel, curriculum and their requirements for admission so as to be eligible to Class A.

Under the present plan, State Boards are not necessarily omitted, and state authority is still recognized for providing its own standards for medical licensure. The certification of the National Board of Medical Examiners, however, represents a form of test and examination which is, in a sense, supplemental to that generally given by the various states, but is of such excellence and value as to be accepted by the various State Boards as satisfactory evidence of fitness to practice within the State.

Certainly, while international recognition is being sought, it should be possible for the National Board of Medical Examiners to secure the acceptance of their certificate thruout the United States and its possessions. To ask for foreign recognition before it receives universal state sanction, places the National Board of Medical Examiners in an illogical position. If American State Boards of Medical Examiners fail to accept and honor the certificates issued by the National Board of Medical Examiners, it can scarcely be said in full truth that there is any American standard for medical practice.

Herein is an opportunity for State Medical Societies to perform a constructive piece of work thru agitating for the acceptance by their respective states of the plans of the National Board of Medical Examiners.

Arachidic Bronchitis.—Arachidic bronchitis is a formidable term which has been introduced by Jackson and Spencer in dis-

cussing a special form of bronchitis due to the aspiration of peanut kernels into the lower air passages. (*Journal of the American Medical Association*, August 30, 1919.)

The accident giving rise to the condition described is not so frequent, but the seriousness of the symptoms and their resemblance to those of laryngotracheal diphtheria warrants fuller information regarding this disease state, most common during childhood.

The symptoms include dyspnea, restlessness, cyanosis, a distressing cough, often paroxysmal in older children and associated with the expectoration of a pinkish gray, thick, tenacious, purulent sputum. Heart rate and respiratory rate are usually higher in proportion to the temperature, which has an irregular septic type of course. An asthmatoïd wheeze is present in a large majority of the patients. Aphonia rarely occurs. Chest inspection usually reveals a lessened expansion on the side of the foreign body; there is impairment of resonance to percussion; and auscultation reveals a diminution of the intensity or an absence of the transmission of the breath sounds. Loud, bubbling, sonorous and sibilant sounds are heard thruout the chest, often with the greatest intensity, however, over the site of the foreign body. At times marked dulness in the lower portion of one side of the chest, together with the absence of breath and voice sounds may be interpreted as evidence of a pleural effusion. A roentgenogram is of great service in confirming the nature of the pathologic condition, even tho the foreign body, the peanut, rarely causes a demonstrable shadow.

The syndrome appears to be quite distinct. Some inherent factor in the peanut makes it more irritating than other forms of foreign body in the bronchi. The pathologic condition is so severe that, if not properly treated, fatality may ensue or an

abscess of the lung develop. The prognosis is grave, unless the foreign body is removed. If the peanut is extracted with an early bronchoscopy, convalescence is usually rapid. If dyspnea is very pronounced, tracheotomy may be required to facilitate the removal of the purulent secretions; and a bronchoscopic removal of the peanut thru the mouth may be effected as soon as the wound has sufficiently granulated.

The definiteness of the symptoms, together with their serious nature, forms sufficient reason for giving particular attention to this type of bronchitis. It does not constitute a new disease, but evidently represents a more or less particularized respiratory affection due to some peculiarity inherent in the peanut, which serves to increase the danger from its inhalation into a bronchus.

The refinements of medical diagnosis depend upon the investigation of details. Large groups of affections are today classified under the generic terms which are constantly being attacked with a view to disintegrating them into their various components. Bronchitis obliterans, for example, undoubtedly contains a number of independent conditions insofar as etiology is concerned, as do acute or chronic bronchitis. The report of investigations upon special groups of cases reveals most valuable information, as has been evidenced, for example, in the special studies of industrial poisons, such as lead, phosphorus and TNT. Medical nomenclature may be greatly enlarged thru the production of new terms, but at least there will be clarity in the terminolgy, together with greater accuracy and definiteness. Arachidic bronchitis conveys a far more definite verbal picture, insofar as cause and effect are concerned, than does a term based merely upon the pathology of the condition.

Lipovaccines.—Prophylaxis, thru immunization, has demonstrated its efficacy. There are numerous difficulties tending to limit the practice of inoculation with bacterial vaccines. In order to obviate some of the obstacles which have arisen, lipovaccines have been developed. E. R. Whittemore, *American Journal of Public Health*, July, 1919, points out that the fact of repeated dosage has served as a serious drawback to the use of bacterial vaccines, so much so, that it is only where compulsory vaccination is mandatory that one may secure a hundred per cent. inoculation where repeated dosages are required. This difficulty is overcome by the use of a lipovaccine, which is a suspension of bacteria in oil that offers at one injection the entire amount of bacterial material required. The slow absorption of the oily suspension permits the development and continuance of the immunity reactions with results that are eminently satisfactory, and with less reaction than when multiple doses of smaller amounts of bacterial material are injected. Experiments tend to prove that the bacteria in oily emulsions do not deteriorate during long periods of time, and that a larger number of organisms may be injected at one dose and that a more lasting immunity may be secured because of this fact.

As a practical measure, it is patent that inoculation with lipovaccines decreases the inconvenience and delay from the vaccination, simplifies the keeping of records, and facilitates vaccination against various diseases without increasing the number of injections over what has been the custom to give, for example, in the triple typhoid vaccination alone.

Because of the slow absorption, the reaction is not marked, and the likelihood of severe reactions is immeasurably decreased, a matter of considerable importance in con-

nexion with the protection of an army or of an industrial community, where absence from work may result in loss of wages, decreased production, or both. The Army has now adopted the triple typhoid lipovaccine as its official vaccine, and experiments are being continued on lipovaccines of the pneumococcus, meningococcus and dysentery groups.

It must not be forgotten that while lipovaccines possess considerable advantage for use in prophylactic inoculation, they are unsuited for therapeutic uses wherein rapid absorption is essential in order to promote the desired curative reactions.

From the standpoint of economy in time, money, effort and storage, as well as because of effectiveness, the lipovaccine promises to supplant the older and more widely known bacterial vaccines suspended in saline solution, for prophylactic purposes. The greater ease with which prophylactic inoculation can be secured, the wider its sphere of usefulness and the greater likelihood of its more general adoption. Lipovaccines strengthen the hands of health officers who can provide for immunization thru a single inoculation more effectively than when multiple injections were required. The summation of advantages is contingent upon a larger experience with a wider variety of organisms than has thus far been employed for lipovaccines. At least, there is great promise in this preventive agency.

Vital Statistics.—Vital statistics, long regarded as the dryest form of human expression, gradually are being recognized as possessing practical value. The investigations into the cost of living are bringing forth statistical material without end. The fluctuations of gold, the frequency of ac-

cidents, the records of births and deaths, the seasonal variations in rainfall, the chances of tossing coins so that heads will appear are expressed thru the use of charts, graphs, curves and plottings to make prominent the facts concerning them. Heights, weights girth of chest, the circumference of the head, the possession of Darwin's tubercle, life expectancy, marriages, divorces, the likelihood of twins are discussed with due and proper recourse to statistical calculations. The presentation of technical papers upon various phases of medicine and surgery with statistics, true or unintentionally false, are of frequent assistance in elucidating the text and in driving home facts and arguments.

Despite the value of utilizing statistics, the average person fears, abhors or fails to understand their significance or use. The general feeling of many is expressed in the ancient saying, "Figures do not lie, but liars often figure." Even if liars were to figure, their results would not constitute a statistic in the truest sense of the word. Others are wont to say that anything can be proven by statistics—an equally false assumption.

Statistics is the name applied to facts expressed by figures. The method of utilizing these fact symbols permits classification, comparison, correlation, generalization and interpretation by the inductive or the deductive method. It is imperative that the forces of logic be brought to bear upon statistics, but it is more important that the recorded statistic itself be recognized first and foremost as a fact. The falsifications thru figures, which has cast doubt upon many tabulations, have been due to failure to deal with the hard facts as Gradgrind would have demanded. With the possession of fundamental verities, the correctness or incorrectness of interpretation must

necessarily depend upon the accuracy of logical analysis or synthesis. Figures, themselves, do not tell a story. They are mere fact symbols, whose meaning may be revealed only by the application of intelligence.

A knowledge of statistical method is necessary in order to make classifications, groupings or combinations of facts, themselves true, so that an end result will be equally precise and accurate. The average medical writer, utilizing figures, depends for the most part upon the determining of averages, the arithmetical mean. It is patent that generalization from small numbers of facts is likely to possess numerous weaknesses. The reporting of a series of four patients of whom two died, would give a mortality of 50 per cent. To regard this figure, however, as more than the index of the experience of the particular reporter would be manifestly unwise. Nevertheless, medical literature abounds in statements of mortality probabilities on the basis of such an inadequate representation or group. It is patent that had the series included six and the mortality been two, the mortality for the series would have fallen to 33½ per cent., or, if out of the four only one had died, the figure 25 per cent. would have been established for the mortality of that series. It is only when large numbers are involved that statistical figures afford a reasonable probability of accuracy in generalization.

It becomes more and more necessary for medical men to acquaint themselves with topics to which little attention is given in medical colleges. It is practically necessary for every worker in public health, the municipal administrator or the worker in industrial hygiene, to possess some familiarity with vital statistics with a view to un-

derstanding their derivation, organization and interpretation. It is impossible to over-appreciate the increasing significance of vital statistics as a basis of constructive planning in public health work. The rapid strides so recently made are merely indicative of the tremendous growth that this branch of social science will undergo under the urge of the public for definite information regarding the problems for which appropriations are sought.

Unfortunately, a considerable proportion of the profession still finds itself lost in the maze of statistical charts, graphs, cartoons and posters which have been devised for illustrating and illuminating the subject-matter of campaigns for the protection of public welfare. There is even a larger proportion which finds itself incapable of preparing material in such a manner as to make it understandable to others. In a sense, the employment of statistics is for the purpose of aiding in the visualization of facts. Some persons are incapable of visualizing anything, and for them, vital statistics possess unusual difficulties.

The end and aim of the statistical method is to facilitate the understanding of human life. It is a tool in the hands of scientists interested in the generation, development and death of human kind. Its applicability is general from the registration of a single birth to the complete enumeration of the world's population in a universal census.

Medical text-books abound in various types of charts from those giving the facts of temperature, pulse and respiration to the more intricate diagrams illustrating the relation between polynuclear leucocytosis and septic infection, or to charts illustrating the relative frequency of morbid conditions in

various sections of a community. A working familiarity with practical clinical charts has not sufficed to inculcate the full appreciation of statistical procedure, and many capable clinicians are embarrassed by the numerical presentation of facts, only slightly more complex than those with which they are familiar. There is incomplete understanding of the doctrines of chance and probability in connection with medical problems. The mind that grasps the statistical phases of medicine is more able to grapple with problems of prognosis, of recurrences of epidemics, of possibilities of malignancy and of the chances of outcome of various clinical practices.

Vital statistics form practically the foundation of preventive medicine, and, as such, merit careful consideration. It is unwise to call upon medical educational institutions to adopt everything that is of service in public health, because the curriculum, unfortunately, is not capable of infinite expansion. There is ample reason to believe, however, that medical education is not to be regarded as satisfactory, from the standpoint of modern preventive medicine until undergraduates receive at least three lectures upon the nature, criticism and interpretation of vital statistics in their practical application to public health progress.

Rural Health Organization.—The problems of rural health education are of paramount importance. The wide distribution of homes over large territories, the lack of easy facilities for communication, a sparseness of medical institutions create a problem entirely distinct from that existent in urban communities or in closely grouped village populations.

The recent study of Maternity and In-

fant Care in Two Rural Counties in Wisconsin, *Bureau of Publication, Number 46*, of the *Children's Bureau* indicates certain lines of effort necessary to secure adequate care during maternity and to lower the infant mortality. It appears to be a strange note to find that the safety of mothers and babies demands primarily the building of permanent and usable roads. The suggestion is fraught with peculiar significance on reading "none of the other needs can be adequately met until such roads cover the county so thoroly that no home, even a remote hill farm or forest clearings shall be a mile and a half—or even half a mile—from a passable road." It is patent that not merely transportation facilities are requisite, but availability that permits home visitation on the one hand, or recourse to centralized institutions as an alternative. Those accustomed to living in sections of the country where the good roads movement has been highly developed fail to recognize the serious problems that exist in various parts of the United States due to a lack of funds to provide proper road-beds, passable and usable at all seasons of the year. For the development of systems of visiting nursing, home education and various types of inspection, it is obvious that improved roads are of paramount importance.

After roads are provided, altho the work should not be delayed because of this shortage, comes the provision of county public health nurses, whose function it would be to establish close relations with the homes with a view to holding periodical meetings for the purpose of exhibits and lectures on topics connected with public health. When possible, health centers should be organized in villages or country schools where mothers might find a central point for the intercommunication of ideas and for formulating

plans of mutual help and interest, with the improvement of health conditions as the ultimate aim.

It should be possible, under state or county auspices, to secure an examination of all children, either in connection with special celebrations in honor of infancy and childhood, or as part of the routine work of state exhibitions or fairs. As much attention should be given to the promotion and betterment of the human stock as to the development of commercially valuable breeds of animals.

Within large territory, it is difficult to have an adequate form of home nursing unless several communities organize for the support of a community nurse, who would be available to help women and children at time of sickness by affording them the essential nursing. Such a plan would undoubtedly require the districting of a county with a nurse assigned to each district. In many foreign countries, it is part of the responsibility of small districts to select promising women and actually pay for their education and training upon the condition that they return to their own community for their future work. This has found its highest development, of course, in the provision for the training of midwives. Some plan of this character might serve to promote the welfare of rural sections and inaugurate a system of self-provision for needs thus far unsatisfied.

The dearth of trained attendants or practical nurses is peculiarly significant in rural communities, tho it should be possible to interest competent women with some training and experience in the home care of the sick to take up definite community work under the direction of a central registry. The practical phases of home nursing

should be under the direction of a district trained nurse who would serve in a supervisory capacity.

For emergency service, the cooperative hospital, under the joint auspices of several counties, is of the utmost importance; but this agency could only function properly after the roads have been improved sufficiently to permit the ready transportation of the sick to the hospital, or the communication of the hospital thru ambulance or other conveyance with the home. Impetus in this direction has already given rise to numerous improvements in rural hospital service in the sparsely settled sections of Canada, where the Victorian Order of Nurses is particularly interested in the solution of this problem.

As a fundamental procedure, however, the State Board of Health must take cognizance of the situation and make the necessary adjustments in its staff to provide for a special division or officer charged with the responsibility of promoting the health of children throughout the state, with particular stress upon the rural sections. A Bureau of Child Hygiene, under state auspices, offers a remarkable opportunity for effective work in making provision for the health care of women and children, particularly in the rural sections, which are scarcely or rarely reached by the infant and child welfare activities increasingly developed by municipalities.

The problem of the country doctor is of growing importance. A realization of the difficulties and obstacles of rural practice, the necessity for medical omniscience, the demand upon his time, energy and skill in practical and theoretical matters fill his daily life to such an extent that despite greater sympathy with numerous rural problems, there is scant opportunity to devise plans or

to secure their fruition. Whatever redounds to the benefit of the community advances his welfare. The organization of state schemes of health education emphasizes the importance of the family physician, and leads to a greater respect for his ability, accomplishments and potentials. In rural sections it cannot be denied that reducing the impassability of roads, the introduction of the public health nurse, the provision of community nurses and the installation of practical, supervised home agents would enure to the advantage of the country doctors. There would be greater security for doctor and patient, an improvement in the medical service of the community and a distinct advance in rural health conditions.

utilized in the theoretic and practical work of including diagnosis, prognosis and treatment.

MacCarty and Broders, *Journal of Laboratory and Clinical Medicine*, August, 1919, suggest the value of pathologic support in ordinary diagnosis. The association of pathologist and clinician strengthens the work and judgment of each one of the pathologico-clinical team. They suggest various ways in which the clinical pathologist aids the clinician, and thus, directly the patient. Obviously, gastric analyses, bacteriologic and serologic examinations, urine and blood examinations, and the study of fresh tissues afford a wealth of information, which may confirm a diagnosis, corroborate a suspicion, cause reason for doubting a diagnosis, or draw attention to accessory pathologic conditions.

Pathology and Necropsies.—In a discussion on "The Relation of Pathology to Practice," *Journal of the American Medical Association*, August 23, 1919, Francis Carter Wood calls attention to the tendency of modern medicine to neglect pathology. He concedes that the lack of interest in pathology is largely due to faulty medical instruction, due to the fact that the courses in anatomy and histology are usually developed from the biologic aspects, rather than as an aid to the understanding of pathologic anatomy. He emphasizes the inadequacy of teaching as the natural result of a lack of necropsies. He points out the difficulties that arise when the student, after completing the regular courses in pathology, "falls into the hands of men instructing in the clinical branches, who often know less pathology than he does, impossible as the fact may seem."

In a broad sense, pathology is a fundamental part of medicine, and should be

There is, however, a marked difference in the possibilities of clinical pathology and a basic pathologic study underlying the practice of medicine. The ability, for example, to understand the picture of a pulmonary condition as revealed by inspection, palpation, percussion and auscultation is of far greater consequence than the knowledge of the size, shape and color reactions of the *bacillus tuberculosis* as recovered from the sputum. The pathologic status of the kidneys, in an individual suffering from nephritic edema, is of more importance than a knowledge of the chemical reactions of albumin and globulin in the urine. A visualization of the alterations at the pylorus resulting from carcinoma ventriculi is more essential than the determination of an absence of hydrochloric acid or the presence of Boas-Oppler bacilli. Even the determination of the Wassermann reaction does not convey any picture of the pathology of syphilis.

The tendency of the past few years has been the overdevelopment of clinical pathology, with regrettably insufficient attention to either gross pathology or pathologic histology. As a result, the medical practitioner is far more familiar with clinical pathology and places a greater degree of reliance upon it in diagnosis than is desirable. There is greater understanding of functional disabilities of the kidneys as determined by dye excretion tests than there is of the changes in the component parts of the kidneys by reason of which the delay in excretion occurs.

The fault undoubtedly lies in the organization of the teaching of pathology in our medical schools. There are only a small group of medical institutions in the country which aim to make pathology the hub of medical teaching. The system of correlating pathologic and clinical medicine has not been thoroly evolved, and, in consequence, the real understanding of the alterations of tissues is not closely associated with the signs and symptoms revealed by medical examination for purposes of diagnosis and prognosis. The ordinary methods of teaching clinical diagnosis fail to drive home the importance of underlying pathology as the reason for the alterations that are interpreted as clinical symptoms. The clinical study of a typhoid patient might well be supplemented by illustration of the various pathologic lesions, gross and microscopic, that are caused by the *bacillus typhosus* and further attention given to these factors when a necropsy of one who has died from typhoid fever presents itself.

Essentially, an improvement in our American system of securing autopsies is required. A lack of interest, certain well-known traditions and questions of sentiment apparently are permitted to outweigh professional interest. This leads to failure in

securing an opportunity to check up diagnostic skill and to understand the details of the various lesions, some of which produced symptoms, and were noted, and others, which, while of profound importance, remained undiscovered during life. The proportion of necropsies which are obtained in our large hospitals fail to be commensurate with the educational needs of the staff and of medical students.

If pathology is to grow in this country and post-graduate study is to be encouraged, there is every reason to believe that the first step to be taken involves greater interest in the securing of autopsies, particularly in those instances where scientific detail demands them. The great body of medical knowledge can be enriched thru a development of post-mortem examinations. Certainly, this obtains most specifically in connection with the medical education of undergraduates and should present unusual opportunities for post-graduate study, or for the practical training and experience of the general practitioners of medicine in all parts of the country.

Mental Hygiene and School Progress.

—The schools are again open and the work of education proceeds as of old, with possibly a little more stress to be placed upon physical training, Americanization, vocational education and the training of the physically handicapped, thru special classes for the crippled, the blind, the deaf and those who are mentally defective.

The trend of modern educators reflects a larger interest in the problems of psychology and psychiatry. As has been true in the case of the physical care of normal children, great advances have come from a recognition of the needs of those suffering from physical defects. In a similar way, a

recognition of the problems of the mentally afflicted, or those with limited mental capability, has given rise to a large volume of data applicable to the general educational processes provided for normal children.

Physical training was virtually an outgrowth of the teaching of hygiene, particularly as related to the harmful effects of alcohol and tobacco. While the teaching probably had very little to do with the development of prohibition, nevertheless, alcoholism may be said to have been largely responsible for the introduction of physical hygiene into the curricula of public school systems. Today, the development and expansion along this line have been marked by the increased time, attention and thought given to plays, games, recreation in general, drills, athletics, gymnastic pursuits, together with a small, and usually inadequately taught, measure of hygiene in the classroom. There has been a wide interest in school hygiene, in the provision of sanitary school houses, with adequate light, heat and ventilation, with properly devised seats and desks and blackboards. Some attention has been given to text-books, with reference to their proper printing and general typographical form along hygienic lines.

On the other hand, while physical hygiene has received marked cultivation, there have been sad evidences of failure to grasp the necessity of giving equal attention to the general subject of mental hygiene. Possibly the schools are not to be blamed for this, at least not nearly so much as should be members of the medical profession, because the knowledge of the rules and principles of mental hygiene have not been widely known or appreciated. Insufficient information concerning the subject has been handed on to teachers in training, and, as a result, they cannot be held sharply to account for failures in observing the rules of

mental hygiene. Some evidence, however, of an awakening along this line is shown thru the wise development of inquiring attendance officers, visiting teachers and the establishment of psychologic departments in connection with public school systems.

Mass education is always difficult, and the more crowded the classroom, the more complicated becomes the problem for the teacher and the less possible is it for the individual child to be recognized as any larger unit of life than a part of a class. Hence, it is not unusual for individual children to develop faulty mental habits, or to manifest symptoms of mental unrest, or even disorder, without attracting the notice that would be given were he to limp or to be hard of hearing.

Pollock, *Boston Medical and Surgical Journal*, August 14, 1919, suggests that "Mental indigestion is probably the most prevalent cause of failure in school. The remedy lies in preparing suitable food for each child." Here, obviously, the presentation of the remedy depends upon a knowledge of the digestive capacities of the individual child. It is an appeal for individualization in education. This is a subject concerning which volumes have been, and may still be, written without satisfactory results, until some machinery is set in motion that provides for the thoro physical and mental examination of every school child. The determination of the course of study for most children is based upon the principle that all children must be prepared for a college education and the subject-matter must conform fairly regularly to the plan of things which was long ago worked out by colleges as essential for higher education. These standards, however, were devised when the bulk of college men were preparing for the ministry, and later, only slightly

modified when a larger number of college students elected to enter law and medicine. Today, the standards are hopelessly false, insofar as they may be said to bear no direct relation to the vocational adaptation of the bulk of our school population. This fact, in itself, constitutes an indictment of our interest in the mental progress of school children.

One may speak of exercises, rest, environment and physical handicap as factors in attaining proper mental hygiene, but greater consideration must be given to the innate mental possibilities of the child itself. The determination of mental capacity is of greater economic value than the search for mental incapacity. That section of the school population which represents the highest four or five per cent. is being notoriously neglected, not merely in matters of education, *per se*, but in every form of mental hygiene which would influence its mental growth.

School systems, as a whole, have failed to act as tho they were cognizant of the child with superior abilities. If the same degree of thought and attention were lavished upon the superior child that is now given to the inferior child, the moron and the high-grade imbecile, there would be a remarkable growth and advancement in the educational standards of our communities. Mental hygiene demands that the mind have an opportunity to function to its maximum potential. The social gains that would accrue from cultivating bright children, instead of permitting them to mark time, cannot be overestimated. The work for mental defectives must go on, but its aim is largely along the line of insurance to the public to protect it against the various evils that might arise from wholly uncontrolled habits, ideas and activities. From this group, little

economic return is expected, save insofar as self-support may be made possible.

From the bright children, however, are to come the great minds of the future. From among them is to develop leadership in philosophy, science and art; and social progress is to be hastened thru their higher education. It is a sad truth that greater educational advantages enure to those who are likely to fail in the struggle for life than to those whose contributions to humankind will repay every effort made in their behalf.

From the standpoint of mental hygiene, it would be most interesting to inquire into the opportunities afforded bright children in our schools. It is not to be denied that exceptional children are skipped from class to class, particularly, if anxious and intelligent parents request that such steps be taken. The rate of progress thru elementary schools should not be conditioned by the interest of the parents alone, but should proceed normally, as the result of the pedagogic principle of advancing a child at a rate of speed that is warranted by its mental ability. If school courses are especially prepared for the defective children in ungraded classes; if more highly trained teachers are demanded; if classes are made smaller; if school lunches are provided; if, in fact, every facility is given and little expense is spared in trying to educate those educable within fairly definite limits, how much more freely should communities spend public funds for the benefit of the higher types of children, who are failing to receive an education and training commensurate with their capabilities. This, at least, is one practical problem of mental hygiene which school authorities might well consider at this time of reopening the schools; and, incidentally, it is a subject not unworthy of a place upon the program of intelligent and thoughtful medical societies.



The Conference of Women Doctors.—

The international conference of women doctors, which took place recently in New York attracted more serious attention on the part of both public and laity than such a conference ever could have done before the war. Tho the woman doctor is no longer a pioneer, except in far Eastern countries, her ability and fitness were not definitely and convincingly proved until the large-scale demands of the war showed that, in point of skill, endurance and courage, she was able to hold her own with the best of the men physicians. It is odd, as it is meaningless, that the criterion by which the woman physician is judged by the public is the man physician, and she is considered favorably or unfavorably according to the measure in which she approximates that criterion. Such an attitude on the part of the public ignores the fact that the woman physician may have a social function complementary to, and apart from, that of the man. In fact, most women physicians, at the very outset of their careers, mark out for themselves a course which will give more ample attention to the social aspect of medical practice which the men have neglected—it is not their intention to replace the men, but to supplement their work and to apply themselves more closely to the moral and ethical phases which they are perhaps better qualified for an account of their sex. In this respect, it is worth noting that practically the entire program of the conference confined itself to just these social and moral aspects of the doctor's function—motherhood, children, the home; the sex problem. Consciously or unconsciously, the woman doctor finds herself drawn to these interests, and it should be heartening and encouraging to the laity that this is so and that the women are giving close attention to problems which the men have considered too little in recent times. However, it is well that the war served to

demonstrate that the woman physician is the equal of her brother, for it laid at rest preconceived notions and prejudices which placed her at a disadvantage; and, having proved this, she can go on, unembarrassed by such prejudice, to do the work for which she is so greatly needed. And this work she is better qualified to carry on than the man physician. Certainly she has in all cases shown a livelier interest in the moral aspects of medical practice than the men.

The dominant subject of the conference was, as announced early, the sex problem. The purpose of the women was to clarify the situation and attempt a solution. There is nothing especially novel in this undertaking. The sex problem has been on many occasions before this the concern of the doctors the world over, and it will continue to be for a long time, no doubt. Whether the women will be able to achieve more than the men it is hard to say. That consideration is not one of vital importance. But it is a fact that the efforts of the men in this direction have grown a little stale by repeated failure, and the women come to the problem with a fresh energy, perhaps a fresh point of view. Singularly enough, it is the one problem in which the medical profession has been unable to make any real progress. The sex question is today as baffling and intricate and unsatisfactory as it was a hundred years ago—if anything, it is more complicated, in view of the new position of the women. The attempt to solve the problem from a distinctly masculine point of view is no longer adequate. The solution, if there is any, must be one in which the women are recognized as the equals of man; and the fact that the women physicians have taken up the problem gives assurance that they will not be likely to assign a subordinate rôle to their own sex. The attempt to deal with the problem at all should be welcomed heartily. However often the attempt has been made before, a

new attempt is a sign of progress, and it is to be hoped that the women will be able to succeed where the men could not.

But, in taking up the problems of the home and of motherhood, the women at the conference were distinctly treading familiar ground and were treating a subject which they are better qualified than the men to cope with. There may be a disposition to feel that, because of the divergent opinions expressed at the conference, the efforts of the women were futile. It is absurd to expect that this complicated problem can be settled at a single meeting. But it is interesting to observe that the doctors at the meeting were at one with the conventional mother in the belief that the mother alone is the best guide and educator of her children. The issue raised by Mrs. Charlotte Perkins Gilman, that children should be taken from their mothers and put in the hands of competent, trained nurses, who were especially fitted for such work, was vigorously contested. The doctors, unlike the educators at the conference, adhered to the old, conservative faith in the importance of the mother's rôle. However, an impartial observer could not help but feel that the educators had the better of the dispute; and, in pointing out that the disposition to bear children does not necessarily assume the ability to bring them up, Mrs. Gilman and her adherents were rather closer to the fact than the doctors. Nevertheless, the willingness the conferees have shown to cooperate with specialists in the various fields that touch upon their medical interests and activities is an encouraging mark of their progressive and enlightened attitude; and, if they persevere in their efforts, the health of the family, as well as its moral wellbeing, is sure to benefit as a consequence of their labors. The wide publicity which the conference was given in the newspapers indicates the interest the public feels in the activities of the women doctors. Once this interest might have been hostile. Now it is distinctly friendly. The women are plowing in a fertile field, and whatever success they have will reflect credit both on their sex and on their profession.

Doctors' Unions.—The drift toward organization which is the dominant note in industry thruout the world is now making itself evident in the medical profession. In

three separate sections of New York City and in fifteen upstate counties the effort to form doctors' unions has met with a success for which the press representative of the Bronx Physicians' Guild vouches. Explaining the motives that prompt the leaders of the movement, this representative, himself a physician, maintains that the doctor needs a union as much as the tailor, or tinsmith, or conductor, or steel-worker; and, defending the charge that a union would tend to commercialize the profession, he explains that doctors live under commercial conditions and so must consider the commercial point of view. Not so long ago an effort to unionize physicians, after the manner of the workingman, would have seemed grotesque and would have been subject to stern criticism as a move which would injure the dignity of the profession. Today, when there is such a wide sympathy with workers the world over and with their efforts to make themselves masters of their destinies, any attempt at organization as a step toward preserving the rights and integrity of any calling commands interest and respect; so that what once would have been regarded as a burlesque must now be taken very seriously. It must be noted that the movement thus far is confined, according to report, to the average general practitioner whose reward has never been adequate at best, and who, in the last five years, has had a very severe time trying to stretch his income to meet the ever-increasing cost of living. In fact, it is emphasized that the present attempt to unionize the doctors is confined to the "under-dog," and that the "big fellows"—the men of large incomes—may well be left to take care of themselves. In that respect, the movement is a frank and earnest effort to improve the position of a class of professional men who feel that their interests have suffered because of the lack of organization and who wish to fortify a position which has become precarious.

In view of this, it certainly is incumbent upon one to take the movement seriously; and, in a large sense, it is clear that such an effort has some very commendable aspects. Doctors are bound closer together than workers, in that the worker's obligation is confined to himself, while the doctor's responsibility is toward the community. Disorganization and contention among

physicians would be injurious, therefore, not only to the practitioner but to the public; and any effort toward organization, toward a better *entente*, toward a standardization of fees, of course with necessary modifications, would be welcome. But to go farther than that is rather hazardous, and the attempt to unionize the doctors goes very much farther than that. The medical profession suffers no indignity in being placed on a level with the worker's calling. We have arrived at a social stage where the worker's place is considered an all-important one, and rightly so. The question is not whether the worker and doctor can be considered in the same class, but whether they can be confined by the same rules and governed by the same restrictions. After all, reduced to its simplest form, the problem of the worker is one only of working conditions—hours, environment and pay. The only link between the medical profession and the laborer is that of compensation, and, firm a link as it is, it is scarcely enough on which to base a complete parallel, for the question of hours or of environment does not enter into consideration in the case of the doctor. He cannot hold out for an eight-hour day. Until disease recognizes an eight-hour day, the doctor will have to hold himself in readiness twenty-four hours a day. As for environment, the doctor creates his own. He does not work in a shop or factory: his office is his own. There remains, then, only the question of pay.

The Question of Fees.—But in the matter of pay, it is hard to say how one can ever come to an agreement that will do justice to the innumerable delicate considerations that arise in the case of the doctor. With the worker, that is a simple matter. His skill and productivity govern his earnings, and these are the only elements that count. Here again the parallel between the doctor and the worker is an imperfect one. Skill is a factor in both cases, but productivity does not figure in the physician's activity. On the other hand, there are elements in his calling which are entirely lacking in the worker's. It is too elastic to be confined within narrow rules. There is, for example, the doctor's personality. It is a commonplace observation that personality is one of the indispensable endowments of the successful physician.

Of two doctors with equal ability, one will effect a greater number of cures merely because of the confidence his person inspires in his patients. This is a familiar psychologic element. But how, in an effort to standardize fees, will this element be measured? Furthermore, the worker is compensated for every bit of work he does, but the doctor is again and again called upon to do scientific, charitable and other work for which he gets no compensation; and that adds a further complication to any effort to regulate his earnings.

The fact is that the movement to unionize the doctors is less a necessary, protective measure than it is a symptom and a protest. As such, it should be earnestly considered. As a definite, final issue it is hard to see how it can be satisfactorily carried thru. One must regard it merely as an indication of the unrest that is stirring in all classes, the wilful aim of the "under-dog" to reap the reward of the sacrifices he was called upon to make in such large measure in the war. And in this effort he has clashed with an element of the public which has shown itself stubborn in relinquishing its accustomed privileges. The consequence of this clash is the innumerable strikes thruout the country that are paralyzing its productivity and promoting bitterness and hardship that might have proved avoidable if both sides showed a more accommodating spirit. The tendency in all but labor quarters is to blame the worker for his impatience and his intractability, his refusal to be patient; but such a judgment does not take into account the equally blameworthy stubbornness on the part of the employers and capitalists who have refused to retreat a single step from an almost feudal insistence on their privileges as a class. Sabotage has been condemned in the workers, but the deliberate sabotage that was practiced by capitalists in danger of losing their possessions during the war has had little publicity. There are altogether too many men of wealth and power without any understanding of the crisis they face, without any comprehension of the deep meaning of the unrest thruout the world, without any realization that they must move with the tide of progress or go down. There are a few enlightened, intelligent, far-seeing employers and capitalists who understand the spirit of the times and who are trying to lead the contending

classes to a better understanding; just as there are among the workers a few leaders who are striving for moderation and intelligent cooperation. But these are in the minority and their voices are scarcely heard above the roar of accusations and recriminations. It is high time that both sides showed a more sensible willingness to submit to reason, that both sides realized that in accommodation lies the solution of their troubles.

Health Forests and Health Towns.—

In the last issue of AMERICAN MEDICINE there appeared what may have been considered by some a cynical summary of the expenditures voted by one of the States for the improvement of the condition of hogs, bees and babies, the lowest appropriation going to the babies; and attention was drawn to the unintelligible circumstance that this singular disrespect for human well-being is characteristic of almost all of our legislatures. Since that comment was written, Gov. Smith, of New York, has awakened to the realization that the Legislature of his own State has shown a most magnanimous concern for forests and a most appalling indifference to humans. "We think little of the millions that we spend in conserving our forests," said the Governor, "but at the same time we give little thought to the State's greatest asset—the health and welfare of the people." The Governor, being a shrewd leader, with a keen understanding of the motives that prompt legislators, spoke of the health of the community, not as an obligation, but as an "asset." A more sentimental critic would have attempted (as in fact we attempted in our editorial last month) to appeal to our legislators on the ground of humaneness. We must pay a tribute to the Governor's better understanding and knowledge of the weird legislative species. It was absurd to believe that Senators curry favor with bees and snap their fingers at babies because they are brutal and inhuman. It is not a question of whether they love bees better than babies. Ever vigilant, as practical, worldly men should be, of the revenue of the State and of the prosperity of its citizens, the gentlemen of the Legislature put their investment into what they thought the more profitable enterprise. Bees paid dividends and babies did not. And so bees were to be encouraged and subsidized.

Governor Smith referred to the wellbeing of babies and citizens as "assets." Legislators, presumably, respond to the appeal of "assets." The following memorandum is therefore respectfully submitted to the legislatures of the country:

The Metropolitan Insurance Company is, as may be surmised, not a charity enterprise. It is a business organization, the legitimate aim of which is maximum dividends. Three years ago its directors, shrewd business men, voted to give the National Tuberculosis Society \$100,000 to establish a "health town." When level-headed insurance directors spend such a large sum of their company's money, they naturally expect it to bear interest, however indirectly it may be. Framingham, Mass., was chosen for the experiment. The leading spirits of the town, level-headed business men, saw a good opportunity for investing the town's money, and raised the per capita expenditures for public health from thirty-nine cents to one dollar. The purpose of this experiment was to show that in many cases sickness and death, particularly tuberculosis, can be eliminated by medical treatment and careful nursing, personal hygiene and adequate health administration. The experiment proved an unqualified success. In 1916, before the experiment was begun, eighty-one babies per thousand died; during the first year of the experiment this was promptly reduced to sixty-one per thousand. Previous to the inauguration of health conditions in this town of 16,000 souls, 121 persons died in one year from tuberculosis. In the first year of the test this was reduced to ninety-nine deaths, in the second year to seventy-nine, in the third year to seventy-six—and this reduction occurred while the town increased in population. At the end of three years the town leaders were well satisfied that their investment of sixty-one cents excess tax for health was an exceedingly profitable one. The directors of the insurance company felt that their \$100,000 experiment was beginning to pay them better than if it had been sunk in first mortgages. Health towns, it was discovered, paid. The health of babies and adults was actually an "asset," which could be measured in dollars and cents. We beg the indulgence of legislators for our carelessness in overlooking these facts and for sentimentally regarding the health of babies and adults merely from a humane point of view.



THE GENESIS OF SPEECH.

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The biogenetic law of Ontogeny being a recapitulation of Phylogeny has become almost an axiom in the science of biology. The experience of the race thru all the by-gone ages of organic evolution, from the single-celled individual to man, is recapitulated in the experience of every human being. By the study of the behavioristic traits in the development of the child, from the moment of conception to adulthood, we are able to trace the different steps the race has taken in the evolution of every human faculty thru the ages. Hence, the close analysis of the development of articulate speech in the infant will give us a hint of the course speech development has taken in the human race.

The new-born infant is devoid of almost all animal instincts except metabolism (B. S. Talmey, Love, p. 102). But soon the infant begins to show some traces of the faculties of the arboreal ape-man. The infant, in the first month of its life, possesses the ability to hang on hands like the ape. Such an infant will grasp its mother's finger and hold on to it with a force out of all proportion to its general strength. The thighs of the infant are usually bent at right angles to the body, pointing to ar-

boreal life. The legs of the infant are comparatively short compared with the trunk, as in the anthropoid apes. During this entire so-called arboreal period the infant is perfectly dumb. Only after it has learned to sit up and stand up in an erect position, after it has learned to lift its head up heavenwards it begins to respond to articulate speech.

From this behavior of the infant we may judge the course speech has taken in its evolution thru the ages. Before beginning to retrace the development of articulate speech it will be of advantage to inquire into the nature of language in general.

Language, consisting of gestures and emotional vocal expressions, is met with in almost all higher animals.¹ In the animal language is an instinct, *i. e.*, it is based upon the experience of the species, not upon that of the individual. It is not subject to gradual development with the growth of understanding. When the mother-hen discovers a worm and emits a certain sound "clack" the young chicks of a day know the meaning of the call and gather around the mother. The meaning of this simple sound is known to them by inheritance, they do not need to learn it. The dog conveys his feelings by different definite sounds. He whines when in pain, he growls in anger.

¹ Different emotional sounds, of rage and enmity, of pain and warning, may be easily distinguished in the dog and many other animals.

and barks in entreaty. These different primitive unarticulate sounds are not subject to individual development; they are an inheritance from his species. He knows these sounds even when brought up alone, in solitary confinement, without ever having heard the voice of another dog.

The primitive animal sounds generally lack articulation, altho the mechanism for articulate vocal expression is present in almost all higher animals. Compared with a wind instrument the animal's lungs represent the bellows, the trachea represents the windpipe, the larynx the voice box and the vocal cord the metallic reeds. Pharynx, mouth and nose represent the resonators. All these organs are possessed by almost all higher animals and are all set functioning in the production of any sound. The cords are thrown into vibration¹ by the air of the expiratory current, forced against them from below, and these vibrations produce simple tunes. The air waves started by the cords are modified by the resonance cavities, pharynx, mouth and nose which

give character to the tone.

These resonators produce also the different vowels which are brought forth by the change of size and shape of the resonance cavities.¹ The vowels "e", "a", "ä", are broad-lipped. The lips in the enunciation of these three vowels are stretched. In "e" the mouth is only a little open and not rounded, in "a" the mouth is more open and more rounded, in "ä" the aperture is quite wide open and still more rounded. The vowels "ä", "o", "u"² are round-lipped. In "ä" the mouth is wide open, in "o" it is less open, in "u" it is little open.

Every sound is composed of tone and noise. The noise forms are consonants, the tone forms are the vowels. The consonants are produced by the gums, tongue, teeth and lips. In the gutturals "g", "k", "ch" and in the liquids "l", "n", "r" the tongue is pressed against the palate; in the dentals "d", "t", "th" the tongue is pressed against the teeth, and in the labials "b", "p", "f" and "m" the lips are pressed against each other.

The peripheral mechanism for articulate speech is present in almost all higher animals. The nervous centers which preside over the different organs of speech are also present in some animals, *e. g.*, the parrot. What these animals are lacking is the cortical speech center. Expiration, phonation and articulation are in perfect order in the parrot; but the parrot's articulate speech is effected by imitation. The animal does not know the meaning of the words it utters. It repeats tunes and words it hears without ever evincing any understanding. When the

¹ In quiet breathing the vocal chink or the fissure of the glottis is of a triangular shape. When a tone is produced the vocal cords close the fissure more or less. Vibrations are characterized by amplitude or extent and by frequency. The amplitude is due to the volume of air expelled by the abdominal and expiratory muscles. The frequency of the vibrations is determined by the length of the vocal cords and by the elliptic fissure of the glottis. Upon the amplitude or the extent of the vibrations depends the intensity of the sound, and the frequency of the vibration stands in relation to the pitch or height of the tone. The more frequent the vibrations the higher is the tone. Tones are named and intervals judged by the musical pitch. The degree of acuteness in man is about five octaves.

The attributes of tonal sensations are intensity, pitch and timber. Intensity and pitch depend upon the two qualities, the amplitude and frequency of the vibrations. The timber depends upon the number of the constituent overtones. The vocal cords, like any other musical instrument, originate several over- and undertones. The blending of these tones constitutes the timber of the voice, *e. g.*, the feminine timber.

¹ The five cardinal vowels "a" (in far), "ä" (in name), "e" (in theme), "o" (in note) and "u" (in cool) are met with in the cat's call m-e-a-a-o-u.

² The sign "u" in this article denotes always the sound "oo" as in cool.

dog responds to the order of the master, it is the gesture concomitant with the order which conveys the understanding, not the articulate voice. He does not grasp the verbal value of the spoken sounds; he waits for the gesture.

As in the parrot, the same phenomenon is met in the infant. In the beginning the infant's prattle represents an echolalia, or an automatic speech mechanism. Only after a certain time has elapsed, and a number of words have been transmitted and deposited within the auditory area of the brain¹ the child begins to grasp the meaning of such words, and only then it is able to think. Abstract thinking is done in words. Abstract thought, therefore, depends upon language. The leading characteristic of man is the power to think and to express his thoughts in words. Only after the development of external language, internal language or abstract thought became possible. Ideation requires the successive grouping of memory images.² The impulse for speech comes from the mind or the inner world. Thence the impulse travels by the motor nerves to the speech organs at the periphery where the sounds are produced. The combination of the sounds forms words and an intelligent combination of words forms human speech. Speech is thus a product of the revival of memory images and the complex motorial

¹ Articulate sounds are imparted as auditory stimuli to the third gyrus of the left frontal lobe of the cortex of the brain and are deposited there as words of others. These articulate sounds constitute within the auditory area for the receptions of these adequate sensations acoustic images.

² The images represent the effects of past stimuli enregistered on the cerebral cortex, especially the effects of the auditory, visual and tactile stimuli, the most important sources of human perception. By the conjoint action of kinesthetic, visual, tactile and olfactory sensory groups, certain percepts may be called up in mind.

or kinesthetic coordination in the cortex of the frontal lobes. These centers are being modified by ontogenetic variations in the human species.

The first names the infant gives to things are onomatopoetic, or sound imitations, as "wow-wow" for the dog in imitation of his bark. Sometimes names indicate qualities, as "hot" for stove. Because the labial sounds "ma-ma" or "pa-pa" are the easiest for the toothless infant to pronounce—he needs only to press the lips against each other—these names are given to father and mother. But in the beginning every man is papa. Only with the growth of mentality the name papa is associated with the father only. By this time every definite composite percept of an object is followed by its name. The child has learned to think, and thinking is done in words.

When we revert to the phylum and try to trace the remote beginnings of human speech we must first inquire into the nature of animal language. Animal gestures and sounds are all emotionally toned. The emotions furnish the motives for the effort to come to an understanding.¹ Among solitary living animals, all other primary emotions do not require any particular means of imparting the same to others; but the emotion of sex demands some form of understanding between the two mates. Among such solitary animals sex emotion is hence the main and paramount motive for the quest of some means of informing the mate. Sounds peculiar to the male serve as a call to the female, an indication of his presence. The females are attracted by the sounds of their future partners. Such sounds as the

¹ The primary emotions are fear, rage, hunger and sex. The first emotion noticed in the lowest type of aquatic animals is fear, founded upon the conservation law. Sex arrives the latest in the life of the individual.

drumming of the snipe's tail, the tapping of the woodpecker's beak, the harsh, trumpet-like cry of certain water-fowl, the cooing of the turtle-dove, the song of the nightingale make it easier for the sexes to find each other. In the thick foliage of the tropical jungle melody of voice offered to the man-ape the best means of attracting and charming the female. Many insects have the power of producing stridulous sounds. In some families of homoptera and orthoptera the male possesses organs of sound which he uses incessantly during the pairing season. Some male fishes make noise during the spawning time. Male frogs and toads emit various sounds at the pairing time. The male tortoise utters a hoarse, bellowing noise during the rutting season. The giraff and porcupine are said to be completely mute except during the period of estrus. The powerful sex stimuli are required to spur the will of these animals to strain their muscles and to surmount all obstacles. When the sex organs swell the bird sings, the cock crows, the cat meaaous and the boy at puberty experiences a change in the register of his voice.

The voice is thus sex-linked. It is used primarily not for warning and giving alarms, as some investigators maintain, but for alluring and winning the mate, or as a stimulant to mating. In animal allurement the rhythm of the sound is the essential part. The cat in the rutting season, when calling for her mate, emits her "meaaous" in regular intervals. The song of the male bird is marked by the regularity of its rhythm. Rhythm is a basic universal trait. The swing of the cosmic rhythm is present in all life, and propagation of life is rhythm-linked.

During the pre-human stage of the race rhythmical calls for his mate have been

emitted by the arboreal man-ape in his primeval tropical forest.¹ Such calls are a phenomenon of courting among all animals and the man-ape in his native wilds could not have made an exception. Such erotic calls became enregistered within the auditory area of the cerebral cortex. The feeling-tone of these calls imparted to the listening mate certain emotions experienced at the consummation of mutual rapture. By apperception, the perception of such a sound of the mate called up certain associations of emotions experienced in the previous sex-ardor. The idea in the pre-human animal, just as in the other higher animals, was quite vague, midway between perception and conception.

But while all other animals remained static, the man-ape steadily progressed, especially with his assuming the erect position his progress in speech became rapid. The man-ape had first to give up his quadrupedal posture and assume the biped erect position before he could learn to express his emotions by articulate speech. He had to learn to stand and walk erect and lift his face from the earth heavenwards, better to perceive visual and auditory sensations.² The keener perception of these auditory and visual sensations produced clearer memory images which were necessary for the creation of human imagination. This in turn led to human conception which is no longer sensory. The percept is sensory; the idea is not, altho it is an offspring of the former.

¹The value of the mimic language within the dark tropical forest in the wilds of the man-ape was almost nil. He had to make use of vocal sounds to impart his presence to his mate.

²A sensation possesses three attributes, quality, intensity and affective tone. In music, quality or "Tonfarbe" is represented by volume and pitch, volume expressing the massiveness of the tone and pitch denoting its height. Low tones are large and massive, high tones are thrill, thin and sharp.

With the change to the erect posture, the man-ape changed into an ape-man and became a terrestrial dweller. Even then it was the erotic gesture, the alluring tone, the rhythmical noise of allurement which created the first thoughts. The feeling-tone of the rhythmic sounds emitted by the ape-man evoked in the mate, especially at the estrual period, vague inarticulate longings, and the undifferentiated aspirations found their adequate expressions in rhythmic responses, music being the clearest language to express emotions, or rather their variations. For while sensations vary little, the variations in emotions are innumerable and great. Poetry precedes prose.

The first stimulus to vocal articulation was thus sex-linked. A powerful stimulus was necessary for the awakening of the heroic will to drag the race away from the beaten track and drive it forward along a new path. Progress is an evolutionary process, but evolution often becomes tired, slackens its pace, stops or falls asleep in the road. To arouse it vigorous shaking is necessary. Such a powerful stimulus emanated from the sex-ardor.

Once vocal understanding was accomplished in the interest of sex articulate sounds became in use for warnings and alarms. With the change to the erect posture the ape-man became a hunter of small animals. As a terrestrial dweller he was surrounded by a greater number of enemies than when he lived in his trees, and he found more protection in numbers. He assumed the life of the pack like the wolf.¹ Within the pack it was necessary for him to learn how to impart to his fellows the three other primary emotions, fear, anger

and hunger. These four primary emotions, sex, fear, anger and hunger thus formed the motive power for articulate speech.

The first roots of human vocal language were onomatopoetic, in the imitation of natural sounds and noises. Before the child learns the animal's name he calls the dog "wow-wow." Later by imitation of the adult's speech he learns the real names of things. The first vocal articulations of primitive man's speech were the imitations of natural sounds. Verbs and adjectives formed the main part of his speech. These articulate sounds were registered on the cerebral cortex¹ and constituted acoustic verbal images. Kinesthetic impulses from the muscles of externalized speech were also sent to the speech area in the third frontal convolution, where the sensory stimuli were enregistered and memory images stored up. The number of significant sounds increased with the number of ideas and things. The state of a people's civilization determines the richness of language. With the growth of man's intellect he learned to articulate

¹ The center of speech is situated at the end of the acoustic tracts in the auditory area for the reception of acoustic phenomena. The auditory, visual and motor centers are bound together thru association tracts. The auditory, visual and kinesthetic sensations produce in these centers perceptual and ideational processes. The sensory stimuli pass then to the motor part of the reflex arc, and the verbal images of articulate sounds are then reproduced at the periphery by the particular speech organs.

All intelligent animals possess association memories and they express their feelings and thoughts by gestures, mimicry, pantomime and articulate cries. The wave of the limb, contraction of the face, expanding of the eyes, the cry of pain, the start or fright are all means for mental expressions. What animals lack is the intellect for articulate speech. Animals, like the parrot, are provided with the mechanism for the production and modification of sounds: They are endowed with an acoustic apparatus for the transmission of the impressions of sound to the brain, and the brain perceives the sounds; but the animal lacks ideation. Hence a limited number of simple sounds to express its cardinal emotions suffices for its simple needs.

¹ The present domestic dog probably became at this period his steady companion and best friend which he remained to the present day.

more and more sounds. The farther man advanced in civilization a vaster number of visual, auditory and kinesthetic memories were lodged in the zone of language.

But before memory images can be stored up or enregistered they must first be produced, and before they are produced a pathway must be created. The creation of the pathway has taken its initial steps at the courting season of the man-ape before he lived in hunting packs. It is during puberty, the first courting season of the individual, when especially in the boy the vocal organs undergo marked changes. The angle of the two plates of the shield becomes more acute, and the vocal cords increase in length in proportion of 5.10, while in the girl the angle remains the same, and the cords increase only in proportion of 5.7. Her voice remains soprano or contralto, almost the same as in early childhood, while the high voice of the boy is changed into the tenor or bass.

This change is an inheritance from our remotest ancestry of the man-ape stage. It was while sitting on some bough in the primeval tropical forest,¹ when at puberty, or at the first estrual period, the man-ape boy uttered his first alluring sounds for his young mate. The combined effect of proper tone quality, of inflection and emphasis, made for an intelligent and sympathetic relationship between himself and his listener.² It was the love stress that taught man the first sound of articulate speech, just as the erotic urge taught the bird its first songs. Melody is primary and universal, and music

¹ At that remote period the silent force of propinquity did not suffice for the attraction of the young mates. The wooing male had to emit special sounds, well understood by the young female.

² The sympathetic relationship once established, they henceforth lived in strict monogamy as most of the anthropoids do to the present day.

is the clearest language to express emotions, especially the emotion of love. Thru rhythmically emitted sounds the man-ape, just as the bird, sent his first messages to his healthy female. Rhythm being an organic part of life, the tonal feeling left an indelible imprint in her and awakened root-ideas already at a time man's progenitor was still a quadrimanous arboreal animal. The psychic over-tones¹ of the erotic allurement-call formed the root ideas of articulate speech and the mnemonic elements served to the formation of a pathway for the auditory and kinesthetic sensations.

Once the pathway for the reception of auditory and kinesthetic sensations was formed, the evolvement of an articulate vocal language was comparatively easy. This evolvement was effected during the long period of hundreds of thousands of years when the ape-man was living in packs like the wolves. As a biped, terrestrial hunter the ape-man often found the necessity of warning his fellows of the approach of danger, or of calling for help when attacked, or of inviting his fellows when a source of food was discovered. Hence sounds of warning, of entreaty, of fear, of rage, had to be singled out to make himself understood by the fellows of his group in the dark as well as in the light. All such sounds led to the evolvement of articulate speech.

Language is a function of relations. The same subject must possess an apparatus for the production and reception of the signs of language. Not only man but all higher animals possess certain organs for the mimic expression of language-signs and

¹ Sex with emotional over-tones and sympathy resonance constitute human love. The alluring overtones of the ape-man created human speech. These emotional tones brought the mental processes to a focus and provoked the faculty of human awareness.

at the same time organs or receptors for the comprehension of the meaning of such signs. The function of language is to transmit to the outside world the impressions, longings and determinations of the animal. The power to manifest these impressions would only be of any value if the individual possessed at the same time the ability of comprehending the language of the other.

But while the animal possesses only the apparatus for the production and reception of gesture signs, man is endowed with the faculty of producing and comprehending articulate speech which is effected by respiration, phonation and articulation. This mode of language is the best means for the expression of sentiments, ideas and the will of man. It has enabled man's character, elevated his culture and extended his mastery over the material elements of life.

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be wrongly modified, of improper temperature, unclean, etc., and successive diarrhea or constipation, gas flatus and eructations, bloody stools, a rapid or slow elevation of temperature, colicky pains, decrease in weight and with loss of subcutaneous fat, may follow.

Then again there is the time when the normal breast fed baby cannot, on account of the poor quality of the mother's milk and irregular feedings perhaps, gain that adequate nourishment needed before this milk assumes its natural condition. After the contagious diseases there is noticed a serious physical, physiologic and nervous deppressional stage where appetite is poor, the temperature is often subnormal, the skin discolored and wasted and the infant whiny and pitiable. In the summer diarrheas of infancy following the severe food intoxications with vomiting and foul-smelling, bloody and curdy diarrheas, there is likewise a period of severe physical and mental inertia and exhaustion. And many such conditions can be enumerated where physical disorders are followed by a physiologic depression.

The general picture is a familiar one, the body is wasted, the central nervous system is exhausted, the internal secretions are altered, weakened and depleted undoubtedly of some of their essential ingredients, and the digestive mechanism is much below par, sunken eyes peering out of deep sockets, the skin clinging to the primitive skeleton, eczemas, a sunken abdomen, thirst, lips dry and subnormal temperature, hunger without satisfaction, weakness or prostration all mark a nutritional abyss. Such cases suffer from a fat, protein and carbohydrate starvation but primarily from a fat starvation for the body being in need of the latter calls upon its reserve supply of carbohy-

THE TRANSITIONAL PERIODS IN THE NUTRITION OF THE AB- NORMAL INFANT.

BY

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The term "transition" signifies a passage from one place to another, from a condition or action to another, a bridging over as it were, and that word brings out ideally that which I wish to convey. There are certain periods in the first year of the infant worrying and harassing alike to the mother and to the physician. When the infant is artificially fed from birth there exists a longer or shorter period before the new modified food "takes a hold" or it may

drates and proteins. We know also that stored fat is a reserve of potential energy and should be brought into use in such wasting disease as I have described attendant upon failure of nutrition. There is a certain amount of fat present in almost all our foodstuffs. Some of this stored fat is derived from sugar and from proteid substances besides being obtained from fatty foods. Now clinically fats have served their purpose well where not only has there been loss in weight and a wasting of the tissues, but where the stomach has been affected and is sensitive to protein foods. This is not hard to understand. The fats are not completely digested until they reach the small intestine where they undergo action by a pancreatic enzyme called steapsin and another lipase of the bile into glycerin and the fatty acids. Some of the free acid unites with the sodium of the alkaline bile and intestinal juices to form a soap. The latter emulsifies the rest of the fat, hastening the action of the steapsin and promoting its absorption.

The food of man is of course divided into two great classes, nitrogenous or flesh-forming, the carbonaceous, or energy-producing. Nitrogen and carbon constitute the chief ingredients of the former; oils, fats and carbohydrates form the principal essentials of the latter.

The primary function of oils and fats, if you will, is to produce heat. The combustion of 1 gram of carbon to carbon dioxide produces 8080 calories, while the presence of oxygen actually reduces the calorific value of the substance. Hence the higher proportion of carbon and the lower amount of oxygen the greater will be the heat-producing power of foods. The fats are much richer in carbon than in starch, or sugar, containing $2\frac{1}{2}$ times as much. Physiologists

believe that in our economy 1 part of fat is necessary to 10 parts of carbohydrate. The fats are more easily assimilated than the carbohydrates; they are, besides, more palatable and assist in the digestion of other articles of food.

In truth most of the fat of our foods is oxidized to CO_2 and H_2O in the tissue cells as fast as it comes to them affording molecular and chemical energy and maintaining the normal temperature, reducing or elevating it in fever or in exhaustion conditions, thereby liberating a large amount of heat. How much fat is needed for a certain infant cannot be computed in the terms of calories but must depend upon the metabolic processes functioning in that individual infant as a certain amount needed to stimulate the metabolism of the proteins and carbohydrates. And just here an interesting experiment by Dr. Hindhede, a Scandinavian specialist might be mentioned. This physician has apparently tried to prove that an individual can keep well and work on a fatless diet if sufficient carbohydrates, namely starches and sugars, are provided. Such a diet to my way of thinking might be given to an individual of adult age and in the best of health and vigor and who in many years has accumulated a sufficient amount of body fat from which to draw or to which might be duly added an even greater amount from the ingestion of fresh sugars and starches. I fear that the good doctor would come a cropper did he try the same experiments upon infants.

In a previous article I tried to point out the value of fats in the form of butters—oleomargarines and the like in the diet of children, and it may be said right here that the American public has a mistaken idea of the manufacture of oils and margarines appearing to believe that they are manufac-

tured from refuse found in garbage and refuse cans. But in this article dealing with infancy where the butters as such are not so easily administered as are the oils, I am again trying to point out the indication of fat in the diet. Now altho "pigs is pigs" fats are not necessarily fats, or carbohydrates carbohydrates or proteins proteins. To make the point clear, animal proteins are harder to digest than either those of fruit or vegetable. Milk and cane sugar cause more digestive upheavals than does fruit sugar or fructose. Why then should not vegetable fats such as the oils be more easily digested or at least just as easily assimilated as the animal? And observations seem to warrant this conclusion. The public has a grossly misinformed idea as to the assimilation of fats and many a mother is at the present time stuffing her infants with cod liver and other oils with cream mixtures, irrespective of stomach and intestinal disorders with the view of increasing the body weight. Moreover, it is a fact that in some infants cream mixtures—a high per cent. of animal fat—can be pushed to a marked degree. Yet in others we find with the same amount of fat a pasty looking infant with pale looking mucous membranes and much intestinal gas with meteorism and tenesmus, at times having diarrheal fatty and curdy stools; yet in the same infant if we reduce the animal fat and in addition give a certain amount of the vegetable—the oils I mean—we get a fat storage, other things being equal a normal stool and a healthy infant. It must be remembered that in the normal healthy mother the normally adequate breast milk is derived from many sources and under that number come both animal and vegetable fats.

The question of what oil to use depends

to a great extent upon our nose, our eyes, our tongues and upon our pocket-book whether it be olive, cotton seed, cocoanut, peanut or corn oil. They all have practically the same chemical composition and digestibility, but on the whole the olive oil is to me preferable, as it undergoes much less of a chemical change in its manufacture, this oil being used more in its natural state.

Our little ones are apt to digest an oil they like better than one they do not like. Each country seems to have its favorite oil. In our country cotton seed, cocoanut and peanut oils as well as corn oil are rapidly coming to the front on account of their digestibility and cheapness. In Russia the oil from the sunflower, in Europe generally the soy bean and sesame oils are extensively used. These edible oils form a highly concentrated and a usually easily assimilated food. Pure oils and fats are practically free from water and contain no indigestible substances such as the crude fibre of vegetables and the cartilage and tendon of meat. Cotton seed oil for instance is a very cheap and a very common substitute for olive oil and as compared to beef at 20 cents a quart will yield more than 5 times the amount of body energy, but of course will not have the same tissue-building properties.

Who of us has not hidden himself away in a nook of his own library or in a spot in the public library and read some delightful little book such as Prof. Tucker's "Ancient Athens"—or perhaps another on Modern Greece and Italy? And possibly with surprise we learn that olive oil formed an important food and even luxury in ancient days and that the famous athletes of those times were given gaily ornamented jars of olive oil for prizes. Today down in our crowded tenement districts the Italian

woman gives the baby, if ill, warm olive oil as she has been taught to in far away Messina. In truth there is no one thing, to my mind, which links the past so much with the present as olive oil; justly famous in those days it is not thoroly appreciated in our country in these modern times. You remember that I said an oil must suit the individual taste—it must be digestible and be of certain caloric value altho valuable time is wasted in estimating the specific caloric percentage which our little patient requires. The taste of oil is important. The Russian accustomed to his sunflower oil would think the bland, highly refined American cotton seed oil, for instance, tasteless and the likes and dislikes of infants and children while impractical and somewhat imaginative are, safe to say, persistent. The Italian and American olive oils are *par excellence*, the ideal vegetable fat food for infants and it really matters little that the domestic product is not so rich in fat as that of Italy, 20-30% compared to 40-60%. Olive oil, chemically consisting mostly of oleins, undergoes as was said, but very little chemical change in its manufacture and its finest grades are those expressed from the fruits with the least possible subsequent treatment.

Now the flavor of olive oil depends upon the variety of tree, the stage of growth at which the olives are gathered and upon the method of separating the oil from the pulp, for fruit picked before ripe is bitter. The finest grade oil is made from selected olives pressed by hand between cloths, the resulting oil washed in water to remove impurities subsequently decanted from the aqueous layer and sold under the name of virgin oil. The commercial oil, on the other hand, is crushed between millstones, then expressed at low pressure. The virgin oil is

of a pale yellowish-green color. The low grade oils possess a bitter flavor. The purest olive oil at low temperature will yield stearin in abundance. Olive oil consists chiefly of palmitin, stearin and olein and contains much more olein but much less stearin than the ordinary solid fats. In cotton seed oil, sesame oil and in other seed oils used as food the quantities of palmitin and stearin are still smaller and together with large quantities of olein contain considerable quantities of linolein. Cotton seed oil, often the fraudulent substitute of olive oil but in truth a much demanded oil, undergoes a very extensive process of manufacture. It may in fact be divided into two general classes, the Bald or black. The first variety derived from the smooth lint-free seeds of the South Sea Island cotton and the second variety originates from the white or woolly seeds of the Uplands and similar cottons which come from the guns with a fluffy white coat of lint upon them. Both these varieties contain about 20% of oil. Crude unrefined cotton seed oil is not suitable for human food for altho it has a pleasing nutty flavor it contains coloring matter and other foreign substances such as albuminous bodies and free fatty acids. It must therefore be refined, often bleached and deodorized; the acids must be neutralized and removed and the major portion of the coloring matter refined away. The margarines are largely made from these oils. Cotton seed oil in common with most of the other vegetable food oils contains such a large proportion of so-called stearins meaning glycerides of palmitic and similar fatty solids that in cold weather the stearins separate out, giving the oil a milky appearance and rendering it less desirable as a food in cold climates. To remedy this the so-called summer yellow grade is "win-

tered"—that is held for a time in chilled rooms or in tanks surrounded by cold brine until it becomes semi-solid. This semi-solid mass is then pressed or run thru a centrifuge to separate the solid stearin from the lower melting oleins. The oleins by the way are present in all animal fats but in greater quantities in vegetable fats. They are solvents for stearin and palmitin and are at ordinary temperatures nearly colorless with a specific gravity of 0.914, without odor or marked taste but become rancid if exposed to the air. Now the boll-weevil has within a comparatively short time been creating havoc in the raising of cotton. Suppose then in the case of failure of this fat food in the high cost of olive oil there is a marked demand for an edible oil, we then turn to other similar American products to help us out, peanut oil for one. The production of this oil is in the United States still in its infancy and there is as yet but little demand for a high grade peanut oil. Another oil rapidly coming to the front under several names and aliases is corn oil—just as valuable and just as necessary a food as the other oils enumerated, and as we turn to store windows and sign boards we see a product of corn oil advertised under an attractive name. Corn oil exists in the small germ-portion of our common Indian corn and altho the germ itself is more than half oil there is only from 36.5% of oil present in the entire kernel. This oil has as yet not become a common household product but is used as a table and as a cooking oil. Now the difference between an oil and a butter is one we may say of degree and dependent upon the temperatures. Fats and butter become oils when melted and reversely oils become butters when solidified—all the fats and oils as already pointed out and used for edible

purposes belong to the same general type.

It must be remembered that the ingestion of fat alone over an extended time will not keep life within the infant because there is a constant loss of tissue protein from the body which finally weakens the vital organs. This fat will, however, act as a bridge to the time when our normal diet takes a firm grip. Bartman noticed that fat given to the extent of 150% of the energy requirement was readily absorbed and spared the protein to a maximum of 7%. Sometimes he noticed that when much fat was given there was an increased elimination of nitrogen in the stools. If a large amount of fat is taken in it is burned up producing heat, and does not draw upon the body fat while the amount of protein consumed remains the same.

I cannot but feel, therefore, that in these subnormal transitional conditions seen in infancy that in the oils given in drops and up to 1, 2, 3 drahms at a time and warm, heat-producing, easily digestible and assimilated as they are, we have a bridge which stretching across an abyss of uncertainty links together the abnormal with the normal.

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Hydronephrosis.—In connection with the correction of the obstructing cause of hydronephrosis, it is well to reduce the size of the pelvic sac by excising a portion of its wall.—*Urologic & Cutaneous Review*.

Inguinal Hernia.—In inguinal hernia put patient under influence of chloroform or ether, and lift the person clear off the bed by the feet for several minutes; directly the bowel will return into its place.—*Med. Summary*.

ENDOCRINE TROPISMS.

(Pituitary Tropisms)

BY

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It is not only a privilege, but a duty to place before you some of the views that prevail among men who have given special consideration to the study of the endocrines. I want to emphasize the fact that it is high time for all those who minister to the sick, to cease worshipping the false Gods of pathology and by removing the smoked glasses of credulity from their eyes, view the subject of "disease" in a cold blooded manner, analogous to that of the expert accountant, who reviews the books and accounts of a bankrupt.

The ability to improve the health of a sufferer from a study of the phenomena that a dead-house supplies, is non-existent, as daily occurrences teach us only too well. He who still persists in the use of such support for the *rationale* of his therapy, is suffering from a mental myopia which sooner or later will be detected by the sufferer to the detriment of the medical profession. The mushroom like appearance of healing cults is not so much the result of greed, as it is the direct outcome of our own failure to "deliver the goods." I do not wish to enter upon a long discussion of hypothetical speculations, but will speak to you directly from the shoulder, by at once dismissing "the thing you want," *i. e.*, *post mortem* lore and the structure built thereupon, and replacing it by "the thing you need," *i. e.*, therapeutics.

Thanks to those who opened my eyes, I am able to tell you that life, health and disease are in the vast majority of instances

the resultants of function and not of structure. Long before the most skilled pathologist can detect any structural change, abnormal function sends its message of distress to the patient's sensorium. And when the condition is such that a structural diagnosis can be made with precision, is it not too late for drugs? Is it not a much saner policy to study the ways and means whereby perverted function can be made so that it does not interfere with the patient's conscious self?

It is necessary at the very beginning to recognize the fact that the great majority of structural changes do not become normal with the remedies in vogue for their removal. This being the case, then why bother about them? The reconciliation between dysfunction and the patient's comfort is the chief concern of the endocrine student, who nine times out of ten deals with complaints that as yet have no definite pathology, and hence for the want of something in its place I have used the term "tropism." The term is to be used in the same spirit that the word "prodrome" is used in the infectious fevers and in ordinary parlance has the same significance as the word "clue." It is the department of endocrinology that very often furnishes the "clue" to the dysfunction of one or more glands that may be responsible for the entire tangle of complaints that the patient displays. As one advances in the study of this most interesting as well as mysterious branch of medicine, the conclusion that gradually dawns upon the observer is the fact that there are no one-glandular diseases, and that the designations of the past were the result of a too limited acquaintance with the workings of the endocrines. This opens a new field not only for diagnosis, but preeminently for therapy.

¹ Paper read before the East New York Medical Society, April 15, 1919.

As an introduction to what is going to follow, I must enjoin you to discard all antagonistic feeling towards him who practices medicine in a fashion that you disapprove. Intolerance is the root of all our therapeutic shortcomings, and the real incentive for all kinds of cults to peddle their wares. We must divest ourselves of this great pest, and instead of prematurely relegating a form of treatment to the rubbish pile, we must first ascertain whether it does not possess some redeeming features. Let us be charitable in our conclusions and not too hasty with our indictments.

In dealing with this most fascinating subject of the endocrines, which sounds more like romance than medicine, you will kindly remember that the body activities are subject to three epochal changes of endocrine supervision. As the domination of one nears its end, the successor begins to manifest its ascension to power by subjective and objective phenomena of a definite character. The first period dates from birth and lasts until so-called puberty, or as endocrinologists are beginning to term it, the "gonado-advent." This rather short but very important period is dominated by the thymus, and usually disappears as its successor enters to assume control. At this time certain forces begin to manifest themselves which even to the casual observer prove that something unusual is going on in the young person. This is the critical period in which a new function is about to be born, foreign to the thymic period of life. The "gonado-advent" is at hand, and its introduction is always accompanied by manifestations which I believe are appropriately designated as an "endocrine crisis." This crisis is again experienced during the "gonado-pause" (so-called menopause). It will be repeated at different times during

this presentation that at no time of their activities do the endocrines work independently of their associates, and that the word "tropism" is used to signify a certain train of subjective and objective symptoms which give a "clue" as to the gland that is not functioning as it should.

The second period of life's activities is dominated by the gonads and lasts thruout sexual life. By this time the thymus has entirely disappeared. Quantitatively, and qualitatively, the gonads are assisted by the other endocrines. And now the human being has solved the purpose of his being and is ready to prepare for the last lap of life's race, thru the "gonado-pause." While this administration of the endocrine government is taking place a second "endocrine crisis" perturbs the equilibrium of the body and the soul and various inconveniences are experienced before the adrenals, which now assume control, are fully established as the final guides thru the remnant of human life; and the adrenals continue to labor until the final and peremptory summons. All these factors must be remembered for they will help to understand the why and wherefore of this or that phenomenon, which to the mind, unaided by endocrine experiences, will appear mysterious and unsolvable, and the perplexed doctor will have to depend upon the meaningless diagnosis of neurasthenia in order to be able to extricate himself out of his dilemma.

To resume our subject, it may interest you to know that all babies in good health owe their pink cheeks to arsenic; but this arsenic is not the crude chemical found in Fowler's solution, but the subtle organic molecule found in the thymus gland. Here is a distinct therapeutic hint, and I advise you to try thymus extract in the next pale-cheeked baby you come across and note the

result. Endocrinology can only be appreciated when it is earnestly practiced, and no amount of talk will convince one as much as a failure or a success in its actual application. An attempt to account for a failure is frequently more instructive than the rapid cure that often rewards the endocrinologist.

To return to the use of thymus in pale babies: It is not the lack of arsenic that makes the baby sick, but rather the absence of endocrine harmony that is the cause of this, and many other phenomena that the child presents, besides its palor. The error having occurred during the temporal régime of the thymus, it is wise to begin treatment with it, and observe whether the missing note has been properly supplied and the endocrine discord thus eliminated. I use the term "properly" with a purpose, for here we can see the propriety of comparing endocrine therapy with music; it is not sufficient merely to strike the proper note; it must be given at a proper time and in suitable dosage. By giving too much, one produces not only discord, but also complicates matters to such an extent that the subsequent handling of the sufferer is made ever so much more difficult. Such experiences also make the doctor skeptical as to the value of endocrine therapy. The harm done by giving too little is infinitesimally less than when too large a dose has been administered. Patients who have been mismanaged by overdosing are the bugbear of the endocrinologist, and by far the most difficult cases he is called upon to help.

To the child's economy the gonads are of least use, but as the "gonado-advent" approaches their domination makes itself apparent in devious ways in different people. No matter how mild the transition from childhood to that of adult life, certain per-

turbations occur, objective and subjective, justifying the name "endocrine crisis" for the phenomenon. This period of life is full of concern for parent and doctor. The discerning physician must keep his eyes open and be on the *qui vive*, as the most critical period of human life, both for man and woman is at hand. From an endocrine point of view, untold misery is the result of a poorly guided youth; many a case of the fatal form of Basedow's disease could have been prevented if the doctor had known what frequent hives means, what a rapid heart and an overintelligent, bright eye signify in a developing young woman. To know what this means is to understand endocrinology. That young woman could have been saved by sparing her in every way, particularly from mental shocks, and by having her mind fortified by the sound advice of a mother, broad-minded enough to explain to her daughter the meaning of her newly developed functions. If carried out diplomatically such management will prevent the terrible anarchy of the cardio-vascular and sympathetic systems encountered in a Basedowic.

So much for the mother's part in prophylaxis of exophthalmic goitre. The doctor, when he notices the first signs of gonadal unrest, in a too profuse menstrual flow, in an ovarian cramp, or in an irregularly appearing flow, must prescribe small doses of ovarian extract extremely cautiously. Give one dose and observe the effect, and do not repeat the dose unless some improvement has taken place in the symptomatology of the patient. When the menstrual phenomenon has been restored to absolute normal function, the doctor will have accomplished a service for which he is entitled to the everlasting gratitude of his

patient. It will be learned from this introduction to the prophylaxis of exophthalmic goitre, that the gonads have a great deal to say in the development of this disease, and even when the trouble has already made itself apparent in a mild form, it is possible to change its course for the better by instituting careful gonadal therapy, medicinal, hygienic and psychic. Another point that was not emphasized sufficiently, besides the bright eye and general nervous make-up of these young women, is the complexion, which is very rarely dark or brunette, their skin being clear and their teeth almost perfect. They wear low cut waists summer and winter, they prefer cold weather to warm and relish a cold bath.

The chances for a boy to develop exophthalmic goitre as a result of a constitutional defect in his gonadal apparatus are practically nil. Nevertheless, he needs as much care as his sister. If there is a maladjustment of his endocrines during his "gonado-advent" particularly if he is of dark complexion, with overhanging eyebrows, is exceptionally bright at school and displays a virtuoso tendency, the physician must be able to see into the future, and forestall an impending dementia praecox. Such a boy is best managed with very small doses of suprarenal extract or with thyroid, but each step must be watched and recorded, and if the desired change in the symptomatology does not take place, other drugs must be given. Such boys may complain of sleepless nights, hot flushes, loss of appetite, constipation and masturbation. They may even at this early date show a religious tendency, or any other peculiar trait that makes the parent anxious for the child's health. The doctor must be warned against the ever-increasing tendency to consign such patients to a sanitarium. The evil is thereby immeas-

urably enhanced, and the attitude towards the sufferer of "out of sight, out of mind" is to be deprecated, as the occasional hypnotic and a little exercise on the lawn of these "repair shops for human derelicts" is not only devoid of therapeutic value, but do actual harm, and the downward course of the incipient malady is, so to say, given a kick, from which few ever recover. There is no denying the fact that there are many unfortunates for whom such institutions are the only place, but they are the cases that have gone so long without rational therapy, that the harm is irreparable and tissue changes have taken place that supply the pathologists with material for publications, describing the pathologic changes in dementia praecox.

It is the duty of the physician to be able to detect the material out of which a dementia praecox candidate is made and thus prevent the full development of the disease at a stage when therapy is still capable of influencing the endocrinopathy. For as long as the doctor is able to keep his patient out of a sanitarium and still prevent him from becoming an extra-social being, he is doing his duty. At this juncture the doctor's tolerance is put to the test, for endocrine therapy is not the only means of accomplishing this; one must make use of the drugs and methods that go against the grain of his convictions.

Here comes in your reformation. Do not remain the slaves of allopathic orthodoxy. Remember that the homeopath, osteopath, and even the Christian Scientist have occasionally given proof of their usefulness. I have patients who tell me that after years of apparently authoritative treatment, the only lasting improvement which they noticed was at the hands of one of the men who practiced one of the above methods of

healing the sick. Regardless of my allopathic or regular training I was glad that the patient felt better, but felt sorry that my brethren in medicine could not detect the symptoms upon which a certain osteopath expended his energy and gave the relief which the sufferer was expecting from us. It is absolutely imperative that we learn the methods of the other fellow, and thereby become proficient all-round therapists, no matter to what school the special way of treatment may belong. There is no patent on how to treat patients, and no one need be ashamed of any method, pro-

plaints. I have in mind the unfortunate Oscar Wilde, who as a result of medical ignorance was put in prison instead of in a hospital, and as the subsequent course of his malady became histo-pathologic, a brain tumor was diagnosed in Paris, most likely of the pituitary gland, as he suffered in his last days from most severe supraorbital headaches, for which a noted surgeon promised relief by operation. What could have been done when he was still a boy and indulged in pranks that deserved the attention of the endocrinologist, is only a matter of conjecture. The association of



FIG. 1.



FIG. 2.

vided it helps to cure. If needs be, recommend an osteopath, but do not permit your patient to wander away from you in disgust, and accidentally consult the osteopath, and get his relief contrary to your approval. It is wise to remember, that once the full-fledged disease has overtaken the sufferer, it is much better policy to leave allopathy and endocrinology alone, and try some of the other methods, a few of which were enumerated above, and in this connection I would earnestly recommend homeopathy.

It is not amiss to remind you that many individuals go thru life with very few com-

the pituitary gland with the gonads is a well known fact. It is only necessary to remind one of the Froehlich type of adiposogenital dystrophy. But the dysfunction is not only pictured by the structural or histo-pathologic change, but shows a definite alteration in the psychic machinery of the individual. This is the main reason for introducing the picture of Oscar Wilde, whose dystrophy was chiefly a psychic one, as his actions amply proved.

In photograph No. 1 we have a 10 year old boy who is normal physically, but occasionally displays unusual fatigability. He

is a fairly good scholar, tho poor in mathematics. In photograph 2 the resemblance to No. 1 on general lines is apparent; the boy, who is 11 years old, suffers from a tic of his eyelids and angles of mouth, and displays a choreiform movement of the left hand. He complains of occasional frontal headaches, and besides his rotund bodily contour also shows a slight hypogenitalism. Compare with photograph No. 3.

In the fourth photograph we see a 16 year old boy who, besides his acromegaloid gigantism, suffers from very bad headaches, the pain being over both eyes and periodic

no help from the doctor. The patient appeared before me in 1918 for the second time regarding his draft in the army. He had much trouble in obtaining preferred classification, as he was able to pass most of the tests applied by the examining surgeon. It is not at all a rare sight to meet an acromegalic on the police force, or in the military service.

Adiposo-genital dystrophy never outgrows its psycho-somatic stamp. Operations on the pituitary gland serve only to save the eyes of the patient. Occasionally the tumor shows such rapid growth, that



FIG. 3.



FIG. 4.

attacks of great weakness, which necessitated his removal from school. His trouble began before the "gonado-advent"; in fact so proximal to the gonadal assumption of power was the abnormal work of the pituitary that he barely escaped acromegaly in its full-fledged form. It seems to me that if the gonads in their psycho-somatic entity retain their powers sufficiently to curb the dysfunction of the pituitary gland, that such an individual will escape the more serious and automatically debilitating forms of this endocrinopathy, and that there will be established an equilibrium, which will require

life is endangered and immediate operation becomes imperative. The fifth photograph shows a boy who was to be operated upon the same week as the photograph was taken. His hypogenitalism is very marked, and his female contour is very striking. Severe headaches and increasing vision defect together with other signs of increased intracranial pressure, aside from the limitation in his visual fields, required operative interference. Photographs 5 and 6 represent two different ways in which abnormal endocrine function may display its activities. In 5 we see the somatic error

in its classical form, in 6 we have the tropism only, *i. e.*, merely a clue of what the individual might be, but psychically he displays sufficient evidence to place him among endocrinopaths.

Regardless of the pituito-tropic tendency in adiposo-genital and acromegaly patients, the former never becomes the latter, and *vice versa*. As before mentioned, many pituito-tropic individuals rarely complain of anything; nevertheless, if one studies their make-up critically and compares that make-up with an endocrinopath, a certain error in common may be discovered by the

discord. They make the best musicians (Ysaye, Fradkin, McCormick) as rhythmicity is one of the chief qualities of pituitary function. Menstruation is a monthly phenomenon because of the proper work of the pituitary gland, and when a girl is the subject of an adiposo-genital syndrome, her menstrual rhythmicity is conspicuously changed. A mature woman menstruates 13 times in a year, but the slightest disturbance in the pituitary changes this number of monthly fluxes.

The boy presented in photograph No. 5 barely escaped hermaphroditism, whereas



FIG. 5.



FIG. 6.

discerning eye. The headaches, if any are supraorbital, the digestive disturbances if any, are accompanied with much gas formation, and peculiarly enough, a pituito-trop will manufacture gas out of nothing and regardless of the most careful non-fermentable diet. A pituito-trop human being need not show the perverted *vita sexualis* of an Oscar Wilde, but that there will be some sort of a tantrum in his sexual life is quite a certainty. All pituito-tropic people are very methodical and rhythmic in their work and avocations. They are extremely fond of music, and are actually pained by

in photograph No. 2 for some unknown reason the tropism assumed a form of motor unrest of the choreic type. In connection with this latter manifestation, permit me to refer to a young girl of 17 who was treated for four years by authoritative neurologists for a most persistent chorea. When I first saw her she could hardly walk, and when she did so she mimicked to perfection the grotesque gait of a well-known screen actor. At first it did not dawn upon me that it could be a case of endocrine interest, but when her psyche was analyzed together with her soma, I

came to the conclusion that there was a primary pituitary defect at the bottom of the entire trouble, secondarily giving rise to catamenic distress. She always had severe menstrual pains and in her mentality displayed the tastes of a child of twelve. She was treated with ovarian extracts but they proved of no benefit. Not until small doses of pituitary extract were employed did she show a tendency to improve. She was totally cured in less than four months.

It is incumbent upon us as physicians to be able to distinguish between "tropisms" and "endocrinopathies" and not to treat end products of disease with drugs, cases like the one pictured in No. 5. The harm has been done, and no amount of drugs will influence the condition to any appreciable extent. In patient No. 5 it was a question of saving his sight and his life, which the surgeon undertook to accomplish and did, but the dystrophy was not influenced in the least. We must learn when to treat and when to admit our limited capabilities.

In considering the second alarming period of human life, or the second endocrine crisis, we must not forget that the "gonado-pause" takes place in men as well as in women, and that it is a far more difficult task to be able to treat the former than the latter. The riddle is further complicated when one is called upon to treat a man who had some sort of a tantrum during his sexual life. To disentangle his complaints and to furnish a tangible meaning to the story hidden therein is much more of a task than the untying of the proverbial gordian knot. Unfortunately, today as in the past, the method of Alexander the Great is resorted to without considering the mutilation which often follows.

A patient of this kind presented himself to me with a history nineteen pages long,

including the methods of treatment and diagnoses made in his case. Not one physician looked further than his gastro-intestinal tract for the endless story of his troubles. To me he reiterated his complaints, describing with great skill his subjective discomfort, but he was taken aback when I touched upon the question of his *vita sexualis*. Here was noted the fact that in two years he had only one sexual contact, regardless of the opportunities which offered themselves on numerous occasions. His mannerisms were those of a young woman, combining forced grace and an attempt to appear neat and sweet. Altho but a few years in this country, he nevertheless uses very choice and studious phrases. The desire to make an attractive impression is evident in every move or word. When he stands he assumes the posture of Venus of Milo, and occasionally gives his pelvis a gentle twist such as girls do when they try to turn on their heel while wearing a tight skirt. His hair is long and wavy, apparently ordering his barber not to trim it short. His face was hairless. His pelvis was distinctly feminine and his hips large, dimpled and pink, like those of a baby. He was given ovarian extract and a week later came with the report that he indulged sexually twice during that time. His gastro-intestinal discomforts were only slightly influenced. In prescribing pituitary extract for a female patient one must be guided by the effect this drug has on her periodic functions. Even a woman's dysfunctions, when they assume a periodic expression, should be treated with pituitary extract, carefully noting any change in the symptomatology.

We will assume that the human being has entered by this time upon the last lap of life's race and said a final goodby to the

gonads, and that the endocrine administration of the body is being transferred to the adrenals. He enters this accompanied by manifestations which I designate as "endocrine crisis." They need not be severe enough to require the help of a doctor; nevertheless, and regardless of freedom from discomfort, some physician may tell him that his blood pressure is high. Of course his blood pressure is high, and it should be so, because his adrenals are now the governors of his functions. In addition to the high blood pressure they also have hot flushes, occasional attacks of asthenia, and a score of other manifestations may present themselves. Now, in older life, the blood pressure and other inconveniences of a subjective nature, may be beneficially influenced by allopathic doses of thyroid or homeopathic doses of suprarenal extract. It is my intention to devote this paper to the elucidation of "pituito-tropisms", and hence I shall not go into the tropisms of the other endocrines, which will be the subject of another communication. But before going any further, do not misconstrue the purpose of this communication; I do not want you to be carried away by my enthusiasm beyond the limits of practicability, nor do I expect you to abandon allopathy or regular medicine; it is also not implied in this article that one should go about scrutinizing people and endeavor to detect in this or that person a candidate for exophthalmic goitre or dementia praecox. It is the doctor's duty to be able to designate them properly when they come to his office. When they display a "tropism" towards any of the particular glands of life, and when their complaints justify your endocrine interpretation, then and only then, prescribe endocrine therapy.

If you bear in mind that small doses are

better and safer than large ones, you will at least not harm your patient, nor will you aggravate his complaints to an extent that will forever banish from your mind the desire to use endocrine products again.

One not infrequently reads in medical journals the statement of prominent doctors who employed this or that endocrine product in this or that endocrinopathy, unsuccessfully. Upon a close study of their reports the reason for their failures is very apparent. One tries to cure acromegaly with pituitary extract; another, dementia praecox with gonadal extracts; every one of them uses piledriver tactics, and then publishes articles about his failures. It is quite evident that the end products of endocrinopathy cannot be cured at all, and when one tries to do so with huge "allopathic" doses, given in the proverbial *t. i. d.* fashion, all one can expect is actual harm.

Above all, remember to be tolerant and charitable; this is very important for the student of endocrinology who earnestly tries to improve his patient's health. It may interest as well as surprise you that one may influence the thyroid function not only with thyroid extracts, but with ovarian extracts, pituitary extract, cod liver oil, spongia and ferrum, given homeopathically, as well as with the use of mechano-therapy and osteopathy. If one takes his time to determine why these various methods have at times "delivered the goods" it resolves itself into the fact that in the case of ovarian extract, one has a powerful endocrine drug having an inhibitory thyroidal influence. When the ovaries are at rest, as is the case in pregnancy, the thyroid increases in size as a result of this temporary lethargy. By giving ovarian extract one accomplishes just the reverse. However,

every Basedowic does not respond to this therapy, and other means must be used to influence the malady. Very advanced cases do not respond to anything. Pituitary extract works indirectly by influencing the gonads. Cod liver oil, aside from the fact that it supplies an excellent fuel for the increased metabolic needs of the patient, also contains organic iodin in a very suitable form. Spongia furnishes organic iodin in a potentized form as prescribed by the homeopath. Metallic iron is prescribed on account of its homeopathic relationship to the complaints of a Basedowic, such as suppression of menses, protruding eyes, or enlarged thyroid, cardiac palpitation, excessive nervousness, marked muscular debility, etc., etc. Mechano-therapy and osteopathy, by manipulating the cervical sympathetic, often produce a quieting effect upon the overworked thyroid. The method best suited for a given case depends entirely upon the therapeutic training of the doctor, who, alas, heretofore cared more for a correct designation of a disease than for its removal.

It is quite clear that every case must be treated on its merits, and that hard and fast rules will never produce the true therapeutic artist, for therapy is as much an art as painting or music. If one will begin now he will still be one of the pioneers in this work, and I am certain will contribute materially to the elucidation of endocrinology and endocrinopathy. For only as long as you are able to distinguish between "tropism," and "endocrinopathy," *i. e.*, between therapeutable cases and those which are only of value to the pathologist and the sanitarium, will you find satisfaction in treating endocrine disorders. Endocrinology should be studied in its incipient forms, for then only can we change the in-

dividual so that he will not become an endocrinopath. In a future address I hope to bring before you the "tropisms" on adrenal, thyroid and gonad cases, as well as such therapeutic suggestions as have come to my notice.

8 West 86th Street.

OVARIAN SECRETION—ITS RELATIONS TO THE HUMAN FEMALE ECONOMY AND THE PRACTICAL OVARIAN ORGANOThERAPEUSIS.

BY

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It is my endeavor in this paper to show the relationship of the ovarian internal secretion to the female economy; also, to mention the indications for the administration of ovarian extract to gynecologic patients who may be suffering from ovarian dysfunction. The cloud of uncertainty regarding ovarian organotherapy has been removed by such men as Dr. Thomas Osborne of Yale, so that today the prescribing of ovarian extracts in office routine should be as definite as the prescription of pituitrin or ergot. A thoro understanding of the action of corpus luteum places in your hand a weapon of singular merit in specific cases.

A consideration of any one of the ductless glands demands a knowledge of the whole endocrine system. It is difficult to dissociate ovarian hormone activities from other ductless glands hormones. It has been experimentally proven that the various glands furnishing internal secretions

are inter-related and inter-dependent upon each other. In order to maintain the physiologic functions of the entire human body it is absolutely essential that all ductless glands, *i. e.*, pituitary, thyroid, adrenals, thymus and gonads work in harmony, some by inhibiting the actions of others, like thymus and ovary; others by working in harmony, synergistically, as for example, the thyroid and ovary.

It is conceded by the majority of investigators that a pathologic condition of any one of the glands of internal secretion throws the entire chain out of equilibrium, as regards their maintenance of the normal physiologic activities of the body. Thus we know that thyroid and pituitary insufficiency may cause the genital organs to remain infantile. Diseases of the above structures may cause retrogression of the genital even after normal function had been established, thus suppressing menstruation and causing sterility. We find that similar disorders occur after the removal of the ovaries before puberty, showing that all ductless glands have a certain amount of influence in the proper development of the female genitalia.

In order to comprehend more fully the functions of the ovary and its secretions in the human female, a brief consideration of anatomic relations, histologic structure and physiologic functions of the ovary may be of benefit.

The ovaries are situated on either side of the uterus, near the pelvic brim and close to the outer end of the Fallopian tube. Each ovary projects from the posterior wall of the broad ligament; it is thru this attachment that the ovary receives its blood supply. Like all endocrine glands it has a very rich blood supply, being supplied by the ovarian artery, a branch of the ab-

dominal aorta, and the tubo-ovarian artery a branch of the uterine artery.

The ovary is made up of ova, held in ovisacs or Graafian follicles, together with connective tissue stroma and connective tissue cells, which are so densely formed that the nuclei appear almost together. The connective tissue becomes thicker toward the periphery with fewer individual cells, and forms the tunica albuginea, or capsule, on top of which is a layer of epithelial cells. These epithelial cells are the remnants of the germinal epithelial layer from which the ova and Graafian follicles are derived. That portion of the ovary in which the blood vessels, lymphatics and nerves enter is known as the hilum. Immediately about the hilum and extending inwards is the medullary portion which contains the blood vessels, lymphatics, nerves and connective tissue holding them together. The medullary portion of the ovary does not contain any Graafian follicles.

It is an established fact that the ovary has a double function, its principal one being the formation of the ova; here nature is very lavish in endowing the woman at 18 with about 3,600 ova and maturing about 200 of them during her life time. The other function is that of furnishing an internal secretion which is taken up by its rich vascular supply and whose influence is felt almost by every organ. It is conceded by the profession at large that the ovary furnishes certain hormones which induce menstruation, maintain pregnancy during the early months, exercise a potent influence in the development of the individual determining the secondary sexual characteristics, such as the development of the breasts, external genitals, uterus, etc. and maintains with the other secretory glands important trophic influences on bones, the

fatty tissue and general metabolism.

The fact that the ovary furnishes an internal secretion was proven by the transplantation and implantation of ovarian tissue in castrated women. As a result of these experiments we are able to rule out ovarian influence thru direct nerve connection and adopt the theory that the ovary secretes a substance which acts on distant organs thru the agency of the blood stream. It is also a common clinical experience that the symptoms which follow cessation of the ovarian function, all derangements which constitute the menopause are influenced by the administration of ovarian extract. Further proof that the ovary does furnish an internal secretion is shown by the very substantial evidence gained from the removal of the ovaries in animals.

Granting then the ovary does furnish an internal secretion, the question now arises as to what part of the ovary presides over that function. This question has been in dispute for many years among investigators and clinicians. The fact is universally accepted however that the follicular apparatus as well as the interstitial glandular substance have distinct endocrine functions determining the form of the body. The interstitial glandular substance performs its most important functions during the pre-puberty stage, while the Graafian follicle, with its corpus luteum exercises all of its influences after puberty. The corpus luteum forms within the Graafian follicle after the discharge of the ovum and is derived from the epithelial cells lining the follicle. In its full development, the corpus luteum presents the characteristic picture of an internal secretory gland with large pale cells lying in close proximity to thin walled blood vessels, much like the adrenals. Since the interstitial glandular substance

has the same histologic structure as the corpus luteum, it is fair to admit that it also furnishes hormones that are of beneficial use to the female economy, tho the knowledge of their specific action is incomplete.

The most important factor of ovarian internal secretion is the corpus luteum. It presides over the implantation and development of the fertilized ovum in the uterus, the increase in size of the uterus at the time of puberty, as well as the cyclic changes incident to menstruation. It prepares the uterus for the implantation and development of the fertilized ovum, menstruation taking place in case of failure of impregnation. The corpus luteum inhibits ovulation. It has been shown experimentally that ovulation can be accelerated by the removal of the corpus luteum. The absence of ovulation during pregnancy is thus assumed to be due to the continued existence of the corpus luteum.

Removal of the influences exercised by the ovarian tissue or the cessation of their function by castration, produces changes in other ductless glands. Among these may be mentioned the pituitary gland, the hypertrophy of which is the cause of skeletal deviations, and accumulations of fat, but not to the extent that it was formerly assumed to be. While it is true that conspicuous obesity in women both after castration and the menopause and even in those suffering from functional amenorrhea does exist, nevertheless, the fact remains that many women who are destined to become fat usually begin to increase in weight long before the menopause and often reach their maximum weight before menstruation ceases; this diminishes the importance of that observation. Often the increase after menopause is only apparent, for at that

time the external tissues lose their firm contour and fat settles into irregular and baggy folds, giving the impression of increase in size tho there may not be any increase in actual weight. In like manner, the increase of fat in women after a double oophorectomy has been overestimated. This operation does not add more to their weight than after any other operation. Another popular misconception regarding the results of double oophorectomy is that certain features of the male type may be acquired, such as deepening of the voice, increase in facial trichosis, coarsening of the skin and assumption of a general masculine character. Clinical tests do not seem to verify this.

All the other symptoms, such as hot flushes, perspiration, dizziness, insomnia and various nervous manifestations which castrated women or those who have reached the end of their ovarian functional activities show, are well known to all and are supported by broad clinical observations.

In the discussion of the therapeutic value of the ovarian extracts, I wish to emphasize the fact that the combinations of ovarian substances together with chemical therapeutic measures in common use prove of invaluable aid in combating the various symptoms which arise thru ovarian dysfunction.

Before we can prescribe intelligently for patients, it is absolutely essential that we eliminate all pelvic inflammatory diseases in their active state, new growths and the various uterine displacements. We may gain valuable information by taking a complete history, particularly as to age, occupation, social standing, marital relationship, a premenstrual history to determine the existence of any congenital malformations or displacements of the organs, also a post-marital menstrual history as to whether the patient is suffering from any form of mens-

trual derangements, paying particular attention to pain in reference to the menstrual cycle. The post-partum and post-abortive states, whether the patient had some form of sepsis, or any remaining after-effects, must also be taken into consideration.

Having ascertained the above data it becomes necessary to make a pelvic examination, in order to exclude pathologic conditions, as the ovarian extract treatment will positively fail in their presence. We must remember that it is our object to replace only normal ovarian hormone activities, the lack of which is producing functional symptoms, and only after the correction of such pathologic conditions as uterine displacements, new growths and inflammatory conditions, if symptoms still persist, should organotherapy be tried.

In cases where the ovaries are destroyed by disease, removed by operation, or inactive from congenital maldevelopment or physiologically reduced by menopause, ovarian extract, two grains twice daily, together with a suitable tonic, nerve sedative, or proper stimulant will give encouraging results. In conditions of infantilism it favors the further development of the reproductive organs and the establishment of their activities.

In dysmenorrhea and in disturbances preceding menstruation such as nausea, vomiting, headaches, dizziness, etc., corpus luteum in doses of two grains twice daily in conjunction with a stomach sedative during the week prior to the onset of the flow will relieve these symptoms. In cases of amenorrhea or delayed menstruation of girls and women, corpus luteum together with a suitable tonic and improved hygienic surroundings will tend to establish a normal flow. The value of ovarian extract in small doses in menopause has been sufficiently demonstrated in everyone's experience, but

I wish to impress the importance of combining the ovarian extract with a nerve sedative (in such cases). Hyperemesis of pregnancy has been successfully combated with the intramuscular injections of one mil of corpus luteum daily, for not more than 12 days, some cases responding to four doses. Some clinicians report a few favorable results in the treatment of sterility by the use of corpus luteum. Changes of the skin of the face particularly about the chin, most evident before menstruation, have been treated with two grains of ovarian extract twice daily, one week before onset of the period. In women past the menopause for several years, who suffer from pruritis (not due to diabetes), senile vaginitis, vulvitis with remote changes, instability, flushes, etc., the ovarian substance in conjunction with local treatment and suitable nerve sedatives has been of benefit. Contraindications for the use of the extracts are mainly acute inflammatory pelvic conditions, pregnancy and hypersexual excitability.

Conclusion.—The value of ovarian therapy is seen in the treatment of patients suffering from functional deficiency or absence of ovarian internal secretion; following in importance is its value in menopause cases, and in young women with functional amenorrhea. Other types of cases in which ovarian therapy is surprisingly efficacious are represented by patients suffering from deficient circulation of blood to the external genitals, such as pruritis, kraurosis, furunculosis and other affections of the vulva in elderly women.

Thus the beneficial effect of ovarian organotherapy, it is safe to say, has passed the stage of theory and speculation and it is now an established fact.

490 Stone Avenue.

UPSIDE-DOWN POSITION IN TREATMENT OF VAGINITIS.

BY

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For more than 15 years I have used the upside-down position in the treatment of vaginitis of small girls. A strong person takes hold of the baby's or child's both feet, turns it upside-down, holding it swinging free in the air; at the same time another takes hold of its both arms, for controlling the position and keeping them away. The vagina I fill to overflow with some antiseptic, such as argyrol solution or oftener with tannin glycerine or some other glycerine combination. The heavy solution goes down to the bottom; the whole "cul de sac" will be reached by the application, which if glycerinated will long adhere and maintain its action. The procedure is repeated daily till *restitutio ad integrum*, which as a rule comes fairly fast. Never do I permit such a home-treatment, as the position looks too cruel and the parents often do not dare to take it up, fearing the objections and criticisms of "friends" who think they know more than the "harsh" doctor. The child can stay very long in the upside-down position without any discomfort; however, till used to it, it always cries and fights against it.

Recently I have applied the position in treatment of vaginitis (gonorrhreal) in full-grown women and with real "quick cures." After a little practice the upside-down position is easily taken from a low table or high bedstead, the legs thereupon, the body—with head down—in the air and the elbows and forearms on the floor. The vagina almost opens itself; is filled to overflowing with the antiseptic chosen (often potassium permanganate) and the

patient stays as long as she can, long enough to disinfect thoroly. The advantages of this treatment are: painlessness (the usual swabbing of the vagina is always painful), and thoroness, as the "medicine" reaches everything, also between the folds, which it helps to flatten out.

HYGIENE OF THE DOOR-KNOB.

BY

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Stationing himself in the anteroom of a toilet in a governmental department building prior to the noon-time luncheon, a Washington physician recently took note of the behavior of the twenty-nine male clerks who visited either closet or urinal just before leaving the premises for a neighboring café.

Of the entire number only three (approximately ten per cent.) availed themselves of the lavatory facilities,¹ before going to eat; twenty-six left the building without approaching a wash-bowl.

Now, since every man on leaving the room was obliged to pull open a heavy door, his hand of necessity grasped the door-knob. Waiving the question whether there were any venereal or typhoid carriers in the group, each of the twenty-six may have deposited vigorous intestinal flora, or a drop of urine, on the aforesaid door-knob. In that case, the immaculate three who cleaned up were not much better off than the rest, for they had to handle the contaminated door-knob, befouled by their un-washed associates.

The incident illustrates the fact that training in elementary personal hygiene is

shamefully neglected. Over and over again it has been demonstrated in the laboratory that the majority of human hands are loaded with fecal bacteria. These are distributed in a most altruistic fashion by direct contact, as in hand-shaking, or indirectly, as by door-knob pollution. Now tho all this potential mischief may be done inadvertently and without malice, it is safe to give new emphasis to the old admonition that

"Evil is wrought by want of thought
As well as want of heart."

Secretions from the nose and throat constitute an accessory and inexhaustible source of infective door-knob defilement, and here, too, the vectors are the hands. But for the present it is unnecessary to make an exhaustive enumeration of the modes of manual or digital infection. The sole purpose of this screed is to insist that the observance of sanitary laws is a moral obligation and a reciprocal duty. Voltaire says that hygiene is a virtue, rather than a science. So much the better. Virtues are to be practiced, not labeled, indexed, pigeon-holed and forgotten.

It is a matter for gratulation, therefore, that Red Cross officials are planning to conduct a campaign of public health education by means of exhibits, lectures and demonstrations before the Chautauqua assemblies in their chief circuits thruout the country during the current season. A project so sane in conception and so salutary in its aims is just what might have been anticipated from that elastic and adaptable organization.

It is hoped that the apostles of this itinerant mission may not only impart an adequate knowledge of hygienic principles, but that they may be able to adapt their instruction in sanitation to practical ends and to the needs of common life.

¹ These were ample, with plenty of soap and hot and cold water.

General progress in sanitary reform is exceedingly slow, like the movement of a glacier. Before any advance can be made in public hygiene, the mass of community sentiment must be acted upon and set in motion by the genial warmth of an enlightened social conscience.

So long as the public mind remains inert and indifferent in reference to the subject, it will be impossible to institute improvements by means of esoteric theories or laboratory analyses, tho the scientific demonstrations and research work deserve to rank as crucial experiments.

This is not to depreciate theoretical instruction or disparage the service of the laboratory. Their aid is indispensable; but until utilized, reduced to practice and applied to living conditions, science never gets anywhere. Academic hygiene merely marks time, without advancing a single step.

With iteration and emphasis it should be urged that the requirements of physical well-being must be enforced. But this enforcement is feasible only thru cooperation, that is, thru the intelligent, voluntary, universal observance of hygienic laws. A League to enforce sanitation must be formed.

Doubtless the delicately manicured young men in the departmental civil service here referred to hold themselves to be daintily neat and tidy in their personal habits. But they and the rest of mankind need to be instructed by precept, by example, by rational and detailed explanation, but, above all, by patient drill and practice, how to be clean.

It is apparent to any observer that habits of personal hygiene need to be cultivated. To be convinced of this necessity notice how people generally perform their ablutions. They commonly draw or pour a little water into a wash bowl, and then dip and wring

their hands in it with the distressed and reluctant air of an eight-year old boy that is required to take a bath. Then they swazzle their faces over with the same dirty fluid in which they have rinsed their hands, and the task is done. Watch out and note how prevalent this form of hydrophobia is.

It ought not to be necessary to point out that, after scrubbing the hands, the water used for the purpose should be thrown out or drained away, and a fresh supply taken for the face. Of course, the ideal cleanup is secured by opening the faucet and washing the face and hands with hot running water and soap.

Interdigital scouring should be thorough, and the nail-brush should be vigorously plied to clean out the favorite ghettos of bacterial nidification—their "bed and procreant cradle."

Instruction in the proper use of the tooth-brush should also be given, and the method should be demonstrated over and over again, until the habit of brushing the teeth on both their buccal and lingual surfaces has become an automatic and routine practice.

These are only a few obvious examples of hygienic procedure which should be standardized. But all training along the lines of health conservation must be personal and specific. It should begin with intensive drill in the home, and be followed up and coordinated, without any discontinuity, thruout the entire period of education, from the days of the bookless kindergarten to the end of post-graduate tuition.

A revised old classic I append
"To point a moral" and make an end:—

This is the house that Jack built.

This is the W. C. door
That hung in the house that Jack built.

This is the door-knob
That oped the door,
The heavy W.C. door,
That hung in the house that Jack built.

This is the man with the fecal hand
That turned the door-knob
That oped the door,
The heavy W. C. door,
That hung in the house that Jack built.

This is the small and cleanly band
That followed the man with the fecal hand
That turned the door-knob
That oped the door,
The heavy W. C. door,
That hung in the house that Jack built.

This is the doctor
That took his stand
To watch the small and cleanly band,
That followed the man with the fecal hand
That turned the door-knob
That oped the door,
The heavy W. C. door,
That, as we have said before,
Hung in the house that Jack built.

TONSILLITIS AND PHARYNGITIS AS A RESULT OF ORAL SEPSIS.

BY

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The linking up of the chain of evidence, anatomic and pathologic as well as clinical, to explain certain well recognized interrelationships of disease has progressed rapidly during the past few years. In 1903 Schottmüller described methods for differentiating various types of streptococci on blood agar cultures, and later Rosenow published his researches on transmutations within the streptococcus-pneumococcus group and attributed a selective affinity on the part of these organisms, under favorable cultural conditions within the body, for certain organs and tissues. The demonstration of varying degrees of virulence in different strains of streptococci and the predilection of some to attack certain tissues, an affinity which Rosenow believes is variable at different

times depending on the source and conditions under which the organisms develop, has shed much light on the causation of many common diseases due to focal infection. The work of Billings and many other investigators has contributed largely to further progress along these lines, of the greatest clinical importance. Thus we have now a satisfactory explanation of the frequent clinical association of appendicitis, gastric and duodenal ulcer and gallstone disease, secondary to oral and tonsillar infection.

The relationship of tonsillitis to rheumatism and of the latter to the erythema group of skin diseases has been recognized for years. Next it was shown that appendicitis might be due to hematogenous infection from the tonsils and that infection in the latter might also initiate acute or chronic disease of the kidneys. Thus, there has been a gradual tracing back of many systemic diseases to important original foci of departure for the infection producing them.

The fact that tonsillitis is often secondary to oral sepsis and that marked cases of the latter are almost invariably associated with tonsillar infection, has not received from either throat specialists or general practitioners the recognition which its practical importance warrants. It is not even mentioned by many authors of recent standard works in diseases of the throat.

W. D. Miller in 1889, in his epoch-making work on the "Microorganisms of the Human Mouth," refers to this association and it is especially emphasized by Wm. Hunter in 1900 in his work "Oral Sepsis," in which he states that tonsillitis and pharyngitis, like stomatitis and septic gastritis, are directly due to the diseased condition of the teeth, tho he comments on the

notable failure of authors to recognize a condition so obvious on careful examination of these cases.

Few clinicians can have failed to note that attacks of sore throat not infrequently follow dental treatment.

For some time I have made it a point to examine closely the throats of all office patients suffering from dental infections.

A general catarrhal condition with redness and hypersecretion of the throat is commonly evident, and a tendency to hawking, recurrent attacks of cold or dryness of the throat is frequently complained of. Often there is little local discomfort, and the tonsils often are atrophic, concealed and may present little superficial evidence of trouble. A history of recurrent attacks of tonsillitis or the escape of caseous material from the crypts, however, may often be obtained.

Pressure by a spatula backward and outward on the anterior pillar of the fauces, so as to extrude the tonsil, and bring it into view and then pressure with another blunted spatula compressing the tonsil itself, will often cause the escape of pus, either from the crypts or from the peritonsillar tissue. I recently saw a patient with recurrent renal hemorrhages of some years' duration in whom ordinary view of the throat showed no evidence of diseased tonsils. The latter were quite small, but firm pressure caused a stream of thin, yellow pus to escape from the right supratonsillar fossa.

Tonsils which have been clipped, or tags which remain after incomplete enucleation, are especially liable to be infected, the scar tissue sealing in the pus, so that evidence of infection is slight on inspection; also the ragged spongy tonsil with fissures and gaping follicles, is often the seat of disease. A thorough examination as before described will

frequently lead to the discovery of a focus of infection responsible for an obscure systemic disease, or account for the persistence of symptoms or incomplete cure after a severe oral infection has been removed by dental treatment.

During the past winter I have made swabs from the interior of the crypts, the peritonsillar tissue or from the escaping pus in 330 routine office cases, usually one swab from each side. Cultures on blood agar were made by R. W. Mann with the following results:

	Cases	Alone	%
Streptococcus, unclassified	16	2	4.7
Non-hemol. Strept.	117	39	35.4
Hemol. Strept.	19	4	5.7
Strept. Viridans	81	24	24.5
Staph. Albus	220	56	66.6
Staph. Aureus	46	9	13.9
Bacilli Mucosa	12	0	3.9

The non-hemolytic streptococcus was found most frequently in contrast with the streptococcus viridans, which is most frequently found in suppurative lesions about the teeth. This may be due to a transmutation in streptococcal types in the passage of infection from teeth to tonsils.

While the type of streptococcus varied considerably in different months the presence of pathogenic bacteria in the tonsil does not necessarily mean that the patient is suffering from active disease, yet if pus and other evidences of the inflammation are present, it suggests an active infection capable of producing systemic disease, and improvement of the latter following enucleation of the tonsils is additional evidence of the virulence of the organisms isolated. Moreover, in recent epidemics in military camps, it has been shown that carriers of streptococci are most liable to develop pneumonia, secondary to measles or influenza, and that of the most virulent type.

The usual mode of tonsillar infection from the teeth is probably by swallowing, tho no doubt it may also be thru either the blood or lymph streams, as there is lymphatic connection between the posterior teeth and the throat.

The presence of dental infection in cases of tonsillectomy or enucleation has many clinical bearings of importance. This applies especially to clipping operations or where tags of tonsilla tissue have been left. (1) The persistence of focal infection in the mouth is likely to keep up the systemic symptoms for which the tonsils were removed, or at least to permit only a partial cure. This accounts for many unsatisfactory results from the removal of infected tonsils. (2) Oral infection tends to aggravate the inflammatory reaction in the throat following operation and at times keeps up a persistent sore throat from which one may often obtain cultures of streptococci long after. (3) It is possible that removal of the tonsils in severe cases of oral sepsis may even increase the tendency to systemic infection by taking away one of the barriers to its entrance into the circulation.

The question therefore arises, "What is the surgeon's proper course of action in cases of oral sepsis with associated tonsillar infection?" Obviously if tonsillitis is frequently *secondary* to the oral trouble, the removal of the latter should precede operation on the tonsils. It is possible that this course would make more successful our efforts to deal with tonsillar infection by local treatment rather than by operation, tho Billings says the infected tonsil cannot be successfully sterilized by any known method of treatment, and entire removal is the only safe procedure.

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Under the Editorial Direction of Albert C. Geyser, M. D., New York.

THE NON-SURGICAL TREATMENT OF GASTRIC ULCER.

A therapeutic procedure must be based upon the causative factor of the disease.

What is the cause of gastric ulcer?

According to the universally accepted dictum, gastric ulcers are divided into the acute and chronic forms. Such a division sheds little light upon the question. It is reasonable to suppose that every chronic ulcer, at some time or other had an acute beginning. It is also possible that this acute beginning of the ulcer was preceded by a still more simple lesion such as an erosion. The causes for a simple erosion are so manifold that we must come to the conclusion that every gastric erosion is not followed by an acute ulcer. In fact the great majority of simple erosions undergo spontaneous recovery after removal of the cause. It must be admitted that it is practically impossible to diagnose simple erosions of the mucosa of the stomach, but that such lesions do occur, there can be no doubt.

We may be equally certain that some of these simple erosions do not undergo spontaneous recovery and that they may be the starting point of an acute ulcer of the stomach.

As one cause of an acute ulcer we must consider anything, therefore, that may be a causative factor of a simple erosion of the gastric mucosa.

We will not attempt to enumerate all the possible causes of simple erosions.

The stomach is subject to trauma over any part of its inner surface, especially at the fundus, yet we seldom find acute ulcer in this region.

Ulcers of the stomach occur at different locations in following proportions:

On the lesser curvature.....	35%
Posterior wall	28%
Pylorus	14%
Anterior wall	9%
Cardia	6%
Fundus	3%
Greater Curvature	3%
Anterior wall	67%

Thus it becomes apparent that erosions may occur anywhere upon the mucosa. Nearly 75% of all gastric ulcers are located in the upper mucosa of the stomach, reaching from the esophagus to the pylorus. Such a distribution is not a coincidence; there is a definite cause for its occurrence.

The blood supply of the stomach is derived from numerous branches of the celiac axis which forms a rich capillary net work beneath the submucosa. There is nothing unusual or noteworthy in the blood supply. Yet some authors have laid great stress upon the fact that first an anemic area is produced, and that the erosion takes place as a consequence of self digestion.

"The nerves to the stomach consist of the terminal gastric branches of the vagus, and the sympathetic fibres of the solar plexus. Both are almost invariably composed of non-medulated fibres. Numerous small ganglia (according to Remack) form plexuses with these nerve fibres, either between the layers of the muscular coat or in the submucosa. From these plexuses nerve fibres run thru the muscular tissue, or the glandular tissue of the mucous membrane." (Luciani's *Human Physiology*.)

"Until recently the direct influence of the nervous system on gastric secretion was regarded as doubtful. The results of experiments were either negative or less obvious than for the salivary secretion. * * * The gastric secretion does not depend exclusively upon the secretory fibres of the vagus, since the stomach is capable of sufficiently digesting alimentary substances introduced into it, even when vagi have been divided. This suggests that other secretory fibres, *spinal or sympathetic* in

origin influence the gastric glands; but there are at present no experimental proofs of this conjecture. * * * Heidenhain assumed that the digestive capacity of the stomach persists even after division of the centers of all cranial and spinal nerves to the stomach. It is probable (altho it has not been experimentally demonstrated) that the *ganglionic plexuses in the walls of the stomach* represent a system capable of special reflex activation of secretion." (Luciani's *Human Physiology*.)

Since most of the ulcers of the stomach were found upon the lesser curvature of the stomach the surgeons developed a certain technic. A "V" shaped piece was removed and the edges again coapted. After a time a large percentage of these operated cases again came to operation and it was found that as a result of the "V" shaped section hourglass contraction had taken place. This technic was then abandoned and others substituted. The results were, however, that only too frequently a secondary operation was necessary ending in a complete gastrectomy. When we recall the fact that a ganglionic plexus exists between the layers of the stomach then take into consideration the surgical fact that hourglass contraction resulted from localized operations upon the lesser curvature, we have a strong reason for suspecting that such a ganglionic plexus may be located at the lesser curvature. If such is the case, then the resulting hourglass contraction is easily explained.

There is still another factor which must not be overlooked. The muscular coats of the stomach are arranged in three layers. There are two principal layers; the external longitudinal and the internal circular one. A third layer of oblique fibres extend over the great pouch only; it extends obliquely over the fundus from left to right and ceases at a distinct line extending from the left margin of the esophagus to about the junction of the middle with the last third of the great curvature. This anatomical fact is interesting, for it is about the point where the oblique layer of fibres ceases that the stomach becomes constricted during the movements which are incident to digestion, dividing the organ into two tolerably distinct compartments.

The ulcer is usually situated at the lesser curvature; if then a "V" shaped piece is

removed—assuming that a possible ganglionic network is located at this point—the removal of it, in whole or in part, will account for the interference with physiologic function. Since, however, the exact location of these ganglionic centers is still a mooted question, may not the arrangement of the muscular fibres be responsible for the hourglass contraction which as a rule follows the removal of the ulcerated area?

It is for this reason that the present day operators have agreed to do a gastrectomy and an end to end anastomosis of the remaining organ. Such a procedure, not only involves a more serious operation, but the patient is minus a larger part of an organ, the loss of which may have a serious influence upon his future longevity.

The Ulcer Itself.—The lesion varies in size from less than one inch to three or four inches in diameter; it is essentially a localized necrosis. Of importance is the fact that these ulcers are surrounded by a zone of stasis. There are no signs of active inflammation, hence almost an entire absence of the process of healing. The gastric ulcer, acute or chronic, presents a complete demonstration of the fact that without inflammation there can be no repair. It also suggests the possibility, that if some of the phases of an inflammatory process could be inaugurated at the site of the lesion, healing or repair would take place.

Physiologic Anatomy.—The sympathetic ganglia located between the third and seventh dorsal interspaces supply the stomach with the vaso-motor control. All repair of injury in any part of the body is under the immediate control of the sympathetic system. The blood supply to any part or organ is directly dependent upon the condition of the sympathetic ganglia with which it is connected. When the ganglia are in a state of active hyperemia the impulses emanating from them are tonic in character, producing a capillary contraction at their distal extremity. When the ganglia are in a state of anemia the impulses, if any are sent out, are weak causing relaxation, engorgement and stasis at their distal extremities. Either one of these conditions long continued with the sympathetic ganglia supplying the stomach would lead to the very condition that is found in acute or chronic ulcers.

Indicated Therapy.—Since neither long continued hyperemia nor anemia of the

sympathetic nervous ganglia lead to repair of tissue, it follows that any means that will restore an equilibrium must bring with itself the means for a cure. If we apply to the spinal region between the 3-7 dorsal region a flexible tin electrode 2-4 inches in size, and another one of the same material but larger is applied over the gastric area in front of the body, we can, by the aid of diathermia heat the entire region. After one hour of such application, a spinal ice bag should be applied to the same dorsal region for thirty minutes. Since relaxation takes place quicker and easier than tonicity, only one-half of the time is required for the cold application. These two treatments should be applied twice daily during the acute clinical manifestations, later once daily, then on alternate days. Personally I have not been impressed with the results from special dieting. On general principles I have recommended a bland diet. If acidosis is present it must be overcome by the administration of alkalies.

The above outlined treatment will symptomatically relieve practically every case of clinically diagnosed acute ulcer of the stomach.

Conclusions.

1. Every therapeutic measure must have for its first object the removal of the cause.
2. Chronic ulcer of the stomach may result from anything capable of causing a simple erosion.
3. Seventy-five per cent. of all stomach ulcers are situated somewhere on the lesser curvature of the stomach; too often to be a mere coincidence.
4. Surgical removal of the ulcer locally is followed in seventy-five per cent. of the cases by hourglass contraction of the stomach; also too often to be a mere coincidence.
5. The ulcer is always preceded by a localized anemia and stasis.
6. The blood supply to the stomach is under the control of the sympathetic ganglia of the 3-7 dorsal interspaces.
7. Ninety per cent. of all clinically diagnosed cases of ulcer of the stomach have been completely and permanently relieved by applying heat and cold to the sympathetic region.
8. In unrelieved cases that have come to operation, the patient suffered from the adhesions and not from the ulcer.

DIATHERMIA IN THE POST PARALYTIC STAGE OF POLIOMYELITIS.

Miss G. age 22 years suffered an attack of poliomyelitis at the age of one and a half years. The treatment of poliomyelitis, in many respects, was about the same nineteen years ago as it is today. In the main it consisted of the application of externally applied heat, massage, and the causing of muscular contractions by either the galvanic or the faradic current (now condemned as not only useless but as possibly harmful). The result of this treatment was that the left leg from the hip down remained in a state of flaccid paralysis. From the non-use atrophy had set in to a marked degree. The left shoe required a cork sole four and one-half inches thick.

It was in this condition when Doctor I. L. Nasher, her family physician, referred the patient to me in October, 1916.

Upon examination we found complete reaction of degeneration in all of the muscles of the affected limb with the exception of the quadriceps extensor, which showed a partial reaction only. The leg and foot below the knee was cold, blue and flaccid. There was shortening of four and a quarter inches; the foot was two inches shorter than its fellow and correspondingly smaller.

The patient was subjected to the diathermic method of treatment. One year later the X-ray plates showed lengthening of the leg bones amounting to three-quarters of an inch. During the same time three-quarters of an inch had to be removed from the cork sole.

The greatest progress has been made since October last; another one-half of an inch has been removed from the cork sole.

This past summer the patient took up swimming and has almost perfect use of the entire limb. During the time of treatment her shoemaker has been obliged to change her last four times. This had not been necessary for six years preceding. The foot is now one-half inch shorter than its fellow and, to the casual observer, of the same size and general appearance as the right foot.

In many of the cases previously shown or reported the question always arose; is it not possible that these cases would have recovered without treatment? Who shall say that they might not have done so? In

this case nineteen years had elapsed since the acute attack. During all of this time nothing was left undone in the way of treatment. The patient did not, however, recover the use of her limb and there was superinduced the usual amount of atrophy. Within less than two years from the beginning of the treatment with diathermia from a Telatherm apparatus, the entire limb has grown in length and circumference, the foot is almost normal in size and the function of the limb has been restored to usefulness.

Dr. H. Wolf showed a case before the orthopedic section of the Academy. In his case both the upper and the lower extremities were involved. No treatment showed any results until diathermia was used on the lower extremities only. When shown before the section, this patient could walk unaided; the upper extremities, which were purposely not treated were as flaccid as before.

Taking these and similar cases as testimony, we are forced to the conclusion that diathermia, so far, is the only agent that has shown real results in the long standing cases of paralysis following anterior poliomyelitis.



Rational Organotherapy

Clinical Identification of the Thyroid Hormone.—In an excellent paper presented at a recent meeting of the Association of American Physicians by Drs. E. C. Kendall and H. S. Plummer, the authors discuss the thyroid hormone. In 1915 the isolation of the thyroid secretion in crystalloid form was accomplished. Since then efforts had been directed to the accumulation of the substance. Structural and empirical formulae were determined and later preparations were made to prove the formulae. These synthetic formulae were studied and the substance was found closely related to the amino-tryptophan group. With the isolation of a single crystalline substance, quantitative measurements were possible. There were two points to be con-

sidered: (1) What the substance did in the body; (2) how was this action brought about. Thyroxin was really an amino-acid. The word thyroxin was an abbreviation of "thyro-oxy-indol." From a study of the absence of this substance, one was justified in saying that thyroxin was not essential to life. Its action was superimposed upon that of the amino acids of the body. With complete absence of thyroxin, however, there was a lack of flexibility in the energy output, as seen in myxedematous individuals. Probably there was one part of thyroxin in ten million in the blood, two parts in ten million in the tissues, and three parts in ten million in the liver. The equilibrium existing in normal individuals lay within very narrow limits. There had to be close relations between the amount in circulation and that in the tissues. There was less than one-third of a grain functioning in the entire body. The question as to its mode of action was examined, as to whether iodine was necessary to its function. It was found that the NH group was essential to the action of the substance. Tests were made upon tadpoles to see which part of the substance exercised influence in metamorphosis, whether the organic nucleus or the iodine. It was found that metamorphosis was influenced by the acetyl derivatives and that thyroxin, therefore, had a closer relation to the acetyl nucleus.

Fatigue at the Front.—Cheyron (*Medical Press*, Aug. 28, 1918) reports that he found that fatigue is the clue to many clinical pictures, and he cures them by rest, repeated laxatives and restriction to water, with administration of quinine. Some men, it appears, returning from the trenches at Verdun, had reached such a stage of auto-intoxication from prolonged constipation that enteritis followed, and several weeks elapsed before normal conditions were restored. He advises the use not only of drugs but of glandular extracts, including that of the testicles, "concluding with a course of tonics and means to recalcify the organism."

Post-influenzal Hypothyroidism.—That the endocrine glands are affected by an attack of influenza was evident in the epi-

demic of last fall. The chief influence is upon the adrenals, tho other glands are commonly affected. In *Progresos Clinica* (abstract *Journal A. M. A.*, July 12, 1919, p. 157) Dr. W. L. Albo details two cases in each of which, following an attack of influenza, girls of 11 and 10 developed somnolency and headache and became forgetful. These were the only cases of unmistakable hypothyroidism he encountered, although he had many cases of post-influenzal nervous and mental disturbances, neuritis, meningitis and meningeal reactions, chorea, mild or paralytic, and psychoses. In one of these hypothyroid cases, under thyroid treatment the somnolency improved at once, the headache disappeared by the third day and the memory returned to normal the fourth or fifth day. In the second case the headache yielded to the thyroid treatment, but the somnolency and the impairment of the memory persisted for over three weeks; the ultimate outcome is unknown. In conclusion Albo remarks that the toxemia of influenza may sometimes have the opposite effect, increasing thyroid functioning and entailing symptoms of exophthalmic goiter, especially in persons with simple goiter or otherwise predisposed.

Intrathoracic Goiter, Showing a Thyrotoxicosis.—Leiner cites a case (*N. Y. Med. Jour.*, Aug. 2, 1919) in which Forchheimer's treatment of quinin hydrobromate and ergotin resulted in improvement, but when it was stopped a relapse occurred, both subjectively and objectively. When the patient received ovarian extract some improvement was noticed in regard to her hot flushes and tremor. Then she was given 5 grains of thymus extract three times a day. No exacerbation of her thyrotoxic symptoms was observed.

Pituitary Extract in Incontinence of Urine.—After three or four subcutaneous injections of the pituitary extract, given once a week in doses of 0.2 to 1.0 mil. (Cc.), depending upon the patient's age, incontinence of urine has disappeared in even the most inveterate cases, and there has been no recurrence for three or four months.—*Urologic and Cutaneous Review*.



By-ways and High-ways

The Prescription of Alcohol.—The restriction imposed on physicians of prescribing a limit of one pint of alcohol in ten days to any individual is one of the most myopic and unintelligent measures that has ever found its way into the statutes. The intention of the measure is obviously of the best; it is meant to curb the dishonest practitioner and prevent him from evading the prohibition regulations by prescribing enough alcohol to favored "patients" to render them immune from the threatened and impending drought. But the mind that conceived this measure, well informed as it was of the merits of sobriety, was exceedingly ill informed regarding medical needs. The result is a measure which is an affront to the honest doctor and which is hardly a safeguard against the dishonest one. There are many loopholes thru which any doctor so minded can easily escape the restrictions imposed; and the sole upshot of the measure is to obstruct the well-intended practitioner only, for his honesty will forbid him to tamper with any statute however mischievous it may be. The result will most certainly prove regrettable to the doctor and very costly to the public. The limit imposed, one pint in ten days, is manifestly dictated by the desire to confine the amount of alcohol obtained illicitly with the aid of a doctor to so small a measure that it will hardly serve the cause of inebriety. In point of fact, this limit merely serves to endanger the lives of innumerable patients suffering from ailments in which the use of alcohol in ample quantities is absolutely essential. The one-pint-in-ten-days restriction can only create mischief and can do no good at all. For, if alcohol is required at all in medical cases, it is required in large doses. Manifestly the father of this measure had a vague notion that alcohol was indispensable in some cases, but he must have been very ill-advised as to the amount essential. In any highly toxic condition, such as pneumonia, certain types of influenza, and in elderly people, at least several ounces a day are required. At this rate a pint would not last

very long. A reduction of the dose to meet the limit the law imposes would merely involve a complete defeat of the efforts of the doctor. A reconsideration of the measure, with a closer scrutiny of the needs of medical efficiency, is absolutely essential. As it stands now, it is merely a monument to the blindness and the bigotry of those who will insist on absolute and unqualified prohibition at whatever cost. The difficulties that complete prohibition will bring in its train will prove sufficiently trying and troublesome in their effects on the healthy members of the community without inviting a dangerous restraint upon the needs of ailing ones.

Motor Accidents and Speed Laws.—

Despite the increase and complication from year to year of laws regulating the motor traffic, accidents have been increasing consistently. The authorities, facing this extraordinary phenomenon, are at a loss to explain this increase; and yet the explanation of the failure of traffic laws is really very simple. Anyone who has ever been in Paris must have been impressed by the utter disregard with which chauffeurs drive their cars thru the crowded boulevards. They no doubt are familiar with the somewhat exaggerated legend that a man who is hit by a taxi will escape as fast as his legs will carry him lest he be arrested for impeding the traffic. They will recall that there is no speed limit in the city, that drivers can go as fast as they like. And yet accidents are much rarer in Paris than they are in New York, where there is a speed limit. From this, one may gather that the trouble with our motor regulations is that they are designed entirely to reduce speed, despite the fact that the average driver's indifference to speed limits is proverbial. In Paris, the man at the wheel can be arrested only for careless driving. The penalty is based on the quality of his driving and not on its tempo. In that respect they show greater wisdom than our own authorities. Rarely is it the fast car that gets into trouble. Nine times out of ten accidents are the result of reckless driving. Ambulances have the right of way on city thoroughfares and they drive as fast as the engine will propel them. The infrequency of ambulance accidents is ample evidence that speed has very little connection with mis-

haps. Doctors' cars are at liberty to break the speed laws, and yet doctors are rarely guilty of accidents. The sooner the authorities take their attention away from the speed element, which few drivers ever respect, and turn their efforts to eliminating careless or unintelligent or mischievous driving, which they can really prevent, the sooner will the number of accidents begin to show a decrease. The penalty for careless driving should be severe and it should be rigidly exacted. Fast driving should not be penalized unless it occurs in circumstances which make it reckless. And one of the first things the authorities should do is to attack incompetence at the wheel.

Misdemeanors on the highway are of frequent occurrence. There are two classes of drivers who are perhaps the cause of more accidents than any other. One is the proud owner of a small car who bears a grudge against every large car that travels the same course as his. He hears the signal behind him from a huge machine of pretentious appearance which wants to pass him, and at once he increases his speed. At no price will be allow the aristocratic machine to show its heels to him and his faithful little "flivver." When the heavy machine swings wide and moves to pass him, he swings wide and obstructs its path. He is proud, stubborn, unreasonable; and as often as not he swings right into the path of the larger car and finds himself the victim of a rear-end collision which is his own fault, having cut off the other car without a timely warning.

The other offender is the woman driver who does not look where she drives but "drives where she looks." It is a well-known characteristic of the woman at the wheel that her eyes will be not on the road, where they should be, but on the occupants of the passing car. The result is that she will often crowd the other car to the edge of the road or drive so close that the other driver will have to swing away sharply to avoid an accident—often without success. It is such driving that is at the bottom of most mishaps, and it is to such driving that the traffic authorities should give closer attention, if they would reduce the appalling number of motor accidents.

Ignorance and a Low Death Rate.—

Physicians engaged in civilian relief work in the Balkans have had a hard fight, not only against disease, but against the ignorance and superstition of the natives. In Montenegro, where these men took hold of the situation recently, there were only four native physicians, or one to every 100,000 inhabitants, and as a result of this and of the years of ferocious and incessant warfare, in which the country has been engaged, a fatalistic habit of mind with regard to illness had been engendered which was extremely hard to combat.

One of the commonest superstitions—which is quaint enough as long as one is not continually opposed by it in daily practice—is that disease is carried about by devils, or *jinni*, who ride the winds at night. Of course if one holds such a belief the only sane thing to do is to keep all windows hermetically sealed, and this every good Montenegrin does, with the result that tuberculosis has made terrific inroads. Nothing so alarms these rough and physically courageous mountaineers as fresh air.

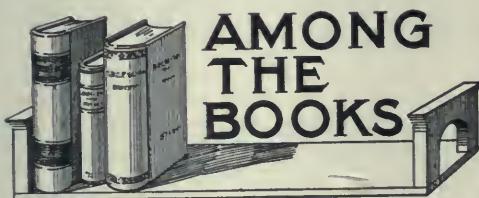
One old fellow with chronic laryngitis insisted that his affliction was due to too short a tongue and refused to take the remedies prescribed. On being assured that the gargle given him would infallibly enlarge that organ, he followed directions with the result that his trouble presently disappeared.

In Albania, where epidemics followed in the track of war, and where many died for want of the simplest treatment, the greatest difficulty was experienced in persuading the sick to come to the Red Cross dispensary for treatment. When, however, a few of the bolder spirits had at last ventured down from the mountains and had experienced prompt relief, the rumor spread like wildfire thru the country that these foreign doctors were miracle workers and there was no further trouble.

We laugh at ignorance and naive superstition and are prone to forget that in great tracts of our own supposedly enlightened country the same conditions prevail. In the cities, health bureaus and medical associations have largely succeeded in doing away with this. But in rural districts, out of touch with urban life and lacking its advantages, there is often a complete ignorance of the commonest principles of sanitation and hygiene.

The public health campaign of the American Red Cross, announced as part of its

peacetime program in connection with the annual roll call, to be held November 2nd to 11th, is aimed at just these conditions. It hopes, thru the organization of community nursing service, thru the stimulation of interest in public health and the stamping out of preventable disease, thru the offering of courses in first aid, home nursing and hygiene and child care, to be a factor in bettering such conditions. It aims to cooperate with local medical associations and public health organizations of whatever kind in the rural districts and without trespassing on the territory of any, to join with them in a campaign which shall make the rural death rate, what it should be and has never been, as low as that of the cities.



Vital Statistics.—To vitalize vital statistics is by no means a valueless performance. At the present time, there is greater use made of statistical methods in the presentation of common facts than has been the custom for many years. Whether one figures the batting averages in the big league, or computes the record of a surgical service, or calculates the index of the price of commodities, wittingly or unwittingly a definite statistical procedure must be employed.

The average book devoted to vital statistics appears cumbersome, ponderous and uninviting. In this particular, *Vital Statistics*, by George Chandler Whipple (John Wiley and Sons, 1919), is a noteworthy exception. Altho containing over five hundred pages, a paper almost as thin as India paper, with bright red flexible covers and edges of gold, makes one think that there is some excellent readable literary work within the covers. And there is, but it is the type that the format would lead one to suspect, and yet, withal, there is a bit of the novel, a little poetry, some humor, and pages of didactic narrative, illustrated by charts, maps, cartoons, diagrams and designs in such a manner as to make vital statistics really appeal, and be attractive. Whipple, whether he is discussing cumulative groupings, logarithms, the classification of population, or the methods of computing specific death rates, uses a simple language that makes the beclouding of his meaning almost impossible.

It is expecting the impossible to seek for mathematical formulae described with the imagery of a modern novel, but, nevertheless, this book offers students of public health an opportunity to familiarize themselves with the essentials of the science of demography, thru the study of vital statistics in a practical, entertaining, and serviceable manner.

Industrial Efficiency.—The war has ended, but industrial effort continues. The various experiences which were realized during the mobilization of our industrial resources for promoting war will be turned to advantage in the great commercial war which is fighting for the world's markets.

In all the machinery of production, the most delicate and sensitive is the human machine, concerning which Frederick S. Lee has written so humanly in *The Human Machine and Industrial Efficiency* (Longmans, Green and Company, price \$1.10). While most of the facts presented formed the substance of the Cutter Lectures on Preventive Medicine and Hygiene under the title of Industrial Efficiency and the War, the facts and principles enunciated are equally applicable to the industries of peace.

Here is an effort to interpret the human machine on a physiologic basis, with a view to determining the various conditions requisite for promoting not merely a maximum output, but for the purpose of conserving the vital machinery itself. The study of hours of labor and rest with relation to output reveals a physiologic curve of working power, not merely for the day but for the week. It is recognized that the character of the work, while of primary importance, is modified by various environmental conditions causing fatigue. The place that rest occupies as a physiologic antidote to fatigue is properly set forth, particularly in connection with the length of the working day, which, thus far, physiologically, may be properly set at eight hours a day. The disadvantages of overtime work and night work are explained upon physiologic grounds.

The old traditions regarding the comparative industrial worth of men and women are partially supported by apparently increased susceptibilities to industrial poisons on the part of women, and the fact that the greatest degrees of efficiency can be secured for the two, only under slightly different conditions; a fact of the utmost importance considering that women have become an indispensable factor in the industrial world.

The relation of industrial medicine and welfare work in connection with promoting the physical condition of wage earners, formerly recognized as an incident to industrial development, is now appreciated as an essential for the advancement of the health and contentment of the worker, and the promotion of his good will, all of which act "as lubricants to the human machine and are indispensable to its highest efficiency."

The strongest appeal of the book is the demand for exact tests in determining the existence of fatigue, and in solving the various

other questions as to human potentialities in industry. The methods of organization of work, and the details of all the operations involved, together with testing of the respiration and pulse, and the muscular balance are necessary to supply adequate physiologic data upon which to base conclusions. The author rightly demands the proper scientific basis for the organization of industrial work thru laboratory and experiments, particularly in industrial plants, so that our knowledge concerning the human machine may be enriched. Science will serve to yield incontrovertible evidence for the scientific management of factories, the enactment of adequate industrial legislation, or the institution of such environmental conditions as would promote the health and longevity of the human machine.

Mental Hygiene in Childhood.—The growing appreciation of education involves revaluations of curricula and methods of instruction. Similarly, there is an increased importance of recognizing the medical and psychologic problems involved in educational affairs. The stress being placed upon mental hygiene makes it necessary that physicians secure a wider understanding of educational problems.

The *Mental Hygiene of Childhood*, by William A. White (Little, Brown and Company) offers an explanation of the hygiene of childhood as interpreted from the point of view of a strict Freudian psychologist. Whether one accepts the view or not, he has written a book which merits careful reading. There is a perfectly logic presentation of this particular form of philosophy as applied to child nurture, particularly for the prevention of mental deformities.

In order to determine the educability of various types of children, it is important to differentiate their abilities and disabilities, whether the mental standard be above or below normal. Constructive educational work requires differential diagnosis as the basis of adequate treatment, just as certainly as does the ordinary problem of determining maladies and their causes exists before instituting therapeusis. Much light is shed upon this phase of the educational problem in the splendid book of Augusta F. Bronner, *The Psychology of Special Abilities and Disabilities* (Little, Brown and Company). Herein are discussed such topics as the special defects in problem work, language ability, and in separate mental processes, along with the variety of defects in mental control. The basis of interpretation of defects is based upon psychologic examinations, including the Binet-Simon scale and the Healy-Fernald tests. The field covered affords abundant opportunity for interesting physicians to achieve a better understanding of many of the problems which are bound to find their way into their offices.

Education.—The standardizations in medicine and surgery find their analogues in education. *Educational Measurements*, by Daniel Starch,

(The Macmillan Company) presents the basis of scientific testing of mental powers in fundamentals. It shows the importance of measurements utilized in connection with psychologic tests as a basis for determining mental powers *in lieu* of the ordinary examination methods so long tried and yielding increasing satisfaction.

While it is true that all the tests described are not of equal merit, they may be recognized as being on trial for specific purposes and subject to alterations or revision or rejection as the future may determine. The theory of measuring ability upon a definite scale is far more sound than to place dependence upon old marking systems as a measure of either school work or mental power. The real benefit of standardized measurements is to express power in terms of known units of a definable character. Furthermore, it possesses the advantage of serving as a check upon the methods and factors in teaching and learning, all of which are now lumped together in a single mark that ignores many valuable factors. The value of educational measurements is increasing and it is desirable that more attention be given to this topic in connection with the routine work carried on in medical colleges.

Social Measurements.—The freedom with which physicians make use of statistics accounts for much of the weakness involved. The technic of measurement is largely limited to a knowledge of the law of averages. A knowledge of medians, modes, skewness, average deviations, the formation and interpretation of graphs and surface of frequency are not appreciated. The effectiveness of group measurements or the correlation of variables is almost completely unknown or neglected.

For this reason, such a volume as E. L. Thorndike's, *An Introduction to the Theory of Mental and Social Measurements*, Teachers' College, Columbia University, possesses a definite value for those charged with the responsibility of tabulating statistical material in connection with hospital work or any other form of applied medicine where accuracy is requisite to give any value to the results.

Dishonesty in Children.—Not infrequently a physician is challenged by a problem of dishonesty that terrifies some parent. While general common sense may be of assistance in directing counsel and advice, a wider appreciation of the subject matter would make a counselor more authoritative. Hence one finds much of value in William Healy's, *Honesty*, a study of the causes and treatment of dishonesty among children (Bobbs Merrill Company). The author discusses not only the mere question of moral development, but analyzes the relation of home conditions and parental behavior, companionship, discipline, amusement and adventure as related to honesty and dishonesty. He dwells at length upon the mental, physical, and

social habits of children, devotes much space to the problems of abnormal mentality, and the facts relating to impulsions and obsessions.

Underlying the entire work is the attitude of the diagnostician, who seeks to determine the underlying cause and does not attempt to see a general principle for universal application. Every cause of dishonesty is individualized, and the causation must be thoroly investigated before a form of treatment is defined. It is at once an exposition of the general subject, and a gentle but firm guide and counselor to those who would treat a character defect with wisdom born of a long experience.

Medical Electricity.—Electricity now plays a much more important rôle in the treatment of various diseases and conditions of ill health than is generally realized. In the rehabilitation of disabled soldiers it has proved of particular service and it is patent that as a result of the experience thus gained, it will be much more largely employed in civil life. Many books on the subject have been written but perhaps the best work ever offered to the medical profession on electro-therapeutics was that by the late H. Lewis Jones, M. A., M. D., F. R. C. P. This book, which has been revised and edited by Lullum Wood Bathurst, M. D. (P. Blakiston's Son & Co., Philadelphia), has reached its seventh edition. Dr. Bathurst is exceptionally well qualified to edit the book as for many years he worked in collaboration with Dr. Jones. It is interesting to note, as pointed out in the preface, that the lines of progress in electro-therapeutics foreshadowed by Dr. Jones in the last edition of his book, namely, the exercise on the one hand of the ionic, and on the other of the thermal effects of electricity, are being fulfilled. In the present edition the newer and more precise methods of the electrical testing of muscles are described, and in all respects the subject matter of the last edition is brought up to date. The book in its present form will continue to hold the first place among books dealing with electro therapy, and the greatest credit is due to Dr. Bathurst for his excellent editing and revising.

Gynecology.—There have been published in recent years a goodly number of books on gynecology, some of them of almost portentous size. The volume before us is of quite modest dimensions, but remarkably complete and comprehensive. *A Manual of Gynecology*, by John Cooke Hirst, M. D. (W. B. Saunders Co., Philadelphia), is a presentation in book form of the material used by the author in teaching students of the University of Pennsylvania during the past twenty years. In some sections, notably those devoted to injuries of chilbirth and their consequences, diseases of the breast, and hemorrhage, he has deemed it best to consider the question from the point of view of both the obstetrician and the gynecologist. Since the work of both so intimately connected presenting the subject in this manner tends to thoroughness and clarity, the main aim of the book is ob-

viously to give in the most concise and clearest language possible one generally accepted method of treatment which has proven its value. The result is exceedingly satisfactory and the entire subject is so well covered that both graduate and undergraduate cannot fail to derive much valuable and instructive information therefrom.

Genitourinary Diseases and Syphilis.—Genitourinary diseases in general, and syphilis in particular, are occupying a good deal of the attention of members of the medical profession at the present day, while syphilis has become a matter of general public interest. It is now well recognized that syphilis is one of the most serious problems of the day and that the war has accentuated the gravity of the situation. The book dealing with *Genitourinary Diseases and Syphilis* by Henry H. Morton, M. D., F. A. C. S. (C. V. Mosby Company, St. Louis), is the fourth edition of this popular exposition of the subject. It is well known that remarkable progress has been made in genitourinary surgery during the past few years. In fact, the treatment of venereal diseases has been placed on a much more scientific basis, a statement which applies of course with greater force to the treatment of gonorrhea than to that of syphilis. The entire subject of the treatment of genitourinary diseases has been developed to an almost incredible extent, and operations for the cure and relief of various genitourinary conditions, which were not thought of ten years or so ago, are now performed with uniform success. Among the most recent means of treating these states of ill health may be mentioned the application of the high-frequency current to the treatment of benign tumors of the bladder and the employment of radium in carcinoma of the bladder and prostate. With regard to the value of radium combined with subsequent fulguration, Morton is of the opinion that this combination seems to offer more in inoperable bladder cancers than anything else which has yet been found.

The portion of the work dealing with genitourinary diseases in general has been thoroly revised and affords an excellent source of reference. However, under existing circumstances, the part of the work in which the venereal diseases are discussed is bound to be of particular interest. The chapters on syphilis are exhaustive, but little is said concerning preventive or rather direct prophylactic treatment. Also none of the other therapeutic measures outside of salvarsan and mercury are referred to. The chapter on gonorrhea in women by Dr. Albert M. Judd is especially worthy of notice and, taken all in all, the book is a wonderfully able work. It is beautifully and profusely illustrated, there being no fewer than 330 illustrations and 36 full page colored plates. It is an authentic and trustworthy exposition of the subject.

Pediatrics.—The study and treatment of the diseases and abnormalities of children have always been especially the concern of American

physicians, and the development and progress in this direction have been largely due to practitioners on this side of the Atlantic. Among the names of men who have won a recognized place in this branch of medical research and practice that of Kerley is one of those that particularly stands out. *The Practice of Pediatrics*, by Charles Gilmore Kerley, M. D. (W. B. Saunders Co., Philadelphia), tho yet in its second edition, has already become a standard work on pediatrics. It deals with the subject of children's diseases from beginning to end, and while, naturally there are some points on which the author differs from the general view, still the book provides one of the fullest and clearest expositions of pediatrics extant. Dr. Kerley very plainly holds some original opinions and possesses the courage of his convictions. The chapters on influenza and syphilis are especially to be commended. With regard to treatment of what Kerley terms tardy hereditary syphilis, he says that his experience with salvarsan has been thoroly unsatisfactory. He points out what many practitioners in these days are somewhat inclined to overlook, that, as in the treatment of tertiary syphilis in the adult, the iodides often play an important part in the late hereditary form in children. As he states, much better results are not infrequently obtained with the so-called "mixed treatment." Since the previous edition was published in 1914, the progress made in pediatrics has rendered necessary many changes and a considerable amount of revision in the present volume. Twenty-five new articles have been added, sixteen chapters largely rewritten, and lesser changes made in many others. A great deal of the old material has been removed, and in its place has been substituted matter which is in accord with the noteworthy progress that has been made during the past few years. The result is a well-balanced, well-written book in which the subject of pediatrics in all its phases is clearly and comprehensively set forth. The work should prove of great value to the practitioner as well as the student of medicine.

opium and its derivatives. This is obligatory under an act passed mainly to control the sale and distribution of narcotic drugs after these were used as a substitute for the alcoholic beverages denied the negroes of the South under the Prohibition Laws originating in that section of the country.

If Congress can limit the use of alcoholic beverages to sacramental and medicinal purposes, it should be competent to punish all offenses against such enactments without passing an oppressive license law affecting the whole medical profession. Inasmuch as clergymen do not have to take out a permit it might be presumed that physicians would receive the same consideration. This perhaps would be the case were it not for the fact that the Anti-Saloon League esteems every physician a potential boot-legger, a conclusion shared evidently by Congress in compelling them to be licensed and supervised by the Department of Internal Revenue.

The Anti-Saloon League also claimed that the "American home" would be converted into a speak-easy unless forcible entry and search were permitted without the formality of warrant. Congress refused to enact any such measure of prohibition enforcement. The imputation is equally false that all the members of a profession elsewhere recognized by governments as not only an honorable but an honored one, will have to be licensed like the liquor dealer to prevent them from carrying on the trade of "boot-legging" in the United States.

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NEW YORK, Sept. 20, 1919.

To the Editor,

AMERICAN MEDICINE:

The 150,000 physicians of the country should protest against the clause of the Prohibition Enforcement Law, now before Congress which compels them to take out a "permit" to prescribe alcoholic beverages in quantities not to exceed an arbitrary limit laid down by a lay body. Already physicians are compelled to take out a Federal and State License to prescribe



Gas Bacillus Infection in Wounds.—Gas bacillus infection could of course occur in any wound but did occur almost invariably in severe wounds, particularly in those of the lower extremity associated with fracture, vascular injury and muscle damage. Van Beuren, Jr. (N. Y. Med. Jour., June 14, 1919), says that such a wound was always far more extensive beneath than in the skin and its depths hid rough missiles and bits of clothing or equipment. Its crevices were filled with blood clots and it was walled by muscle, fascia and aponeurosis, torn, contused and loaded with indrawn fragments of comminuted bone and with extravasated blood. The regional blood supply was locally or massively interfered with. There was also infection, usually with a varied flora, including the gas-forming, saprophytic anaerobes.

In the early part of the war surgeons began by simple incisions and drainage, but they rap-

idly arrived at a fairly standardized procedure. Only general rules could be formulated, as much depended upon the judgment of the operator.

1. Use nitrous oxide oxygen anesthesia, if possible.
2. Prepare the part with minimum delay and trauma.
3. Avoid tourniquets.
4. Make incisions longitudinally and one-half again as long as you think they need be, both in skin and fasciae.
5. Leave as much skin as you dare, in débridement.
6. Go between rather than thru normal muscles and do not cut across them unless you have to. Better a long separation between two than a short cut across one.
7. Open the wound as thoroly and freely as you possibly can.
8. Excise all torn, crushed, discolored, non-contractile muscle until you have left only that which is firm, of normal color, actively contractile, and which bleeds readily.
9. Make a careful and consciousness search for and remove all loose bone, soiled and torn fasciae, and foreign bodies, especially clothing and blood clots.
10. Stop the bleeding. Leave the wound wide open and separate its walls with wet gauze, laid in—not packed in.
11. Use Carrel tubes if you know that they will be properly cared for, otherwise omit them.
12. Use plenty of dressings and make careful splint fixation of the part.
13. Do it all as rapidly as you properly can.

Carrel-Dakin instillation was considered the best postoperative local accessory treatment when properly applied. Serotherapy remained to be considered. Doctor Van Beuren said he had no personal experience with this method and that while serotherapy promised much for the future, it had not had much opportunity for performance in the past, or if it had reports were not available. The results of the series tried out by the British and the Americans were not yet available, but the speaker had been informed they were encouraging if not as brilliant as had been hoped for. The sera used by the British, French and Americans were either specific antiperfringens (anti-Welchii), anti-oedematis (antibellonensis), antivibron septique or a combination of the three, preferably with antitetanic serum included. Intravenous administration was perhaps most effective but was not always possible. For preventive use it was usually given subcutaneously and intramuscularly and the combined sera used, the dose being from ten c. c. to sixty c. c. repeated, if symptoms developed. For curative injections the appropriate specific serum or sera were used, after the infecting organisms have been identified, in twenty c. c. to sixty c. c. doses, repeated as indicated. Here the intravenous method was generally combined with intramuscular injections. Dr. Van Beuren, Jr., in his conclusions states that one may with fair confidence assert that future improvement for gas bacillus infection of war wounds would rest upon: 1. Preventive serotherapy; 2. Earlier operation, due to more rapid transportation. 3. Observance of

the correct operative procedure. 4. Curative se-rotherapy.

Digestibility of Bacon.—Katherine Blunt and Marguerite G. Mallon (*Journal of Biological Chemistry*, May, 1919) report a series of experiments undertaken to test the accuracy of Rubner's statement that bacon fat showed a low utilization, 17.4 per cent. of the fat eaten being lost in the feces. Their work developed results that showed Rubner's views to be erroneous, as they found that bacon fat was about as digestible as other soft fat, and that the nitrogen is also as well digested as that of other meat. The average percentage of digestion of the fat of slightly cooked bacon was 96.3, and of much cooked bacon ninety-seven, while the average percentage of utilization was respectively 92.8 and ninety-five.

Treatment of Extensive Septic Wounds.—H. Gardiner (*Lancet*, December 7, 1918) holds that the chief use of gauze dressings is to protect wounds from extraneous infection, and that the objectionable features of their use can be avoided if some other means of preventing infection be provided. The following proves more satisfactory: The wound is incised and all pockets are opened up in such a way as to obtain the maximum effects of gravity in carrying away the discharges. Then an ordinary gauze packing is applied and bandaged on for the sole purpose of checking bleeding and oozing. This is removed after forty-eight hours and the wound cleansed by syringing with some mild antiseptic such as boric acid, or weak eusol, solution. A guard of appropriate size and shape is made of perforated zinc and bent to form a cradle over the infected part. This is place in position and covered by a sterile towel and a bed cradle is put on to hold up the bedclothes. The discharge which runs from the wound is absorbed by a sterile wool or sphagnum pad placed beneath the part. Twice daily, or oftener, the wound is uncovered, syringed and swabbed out, the pad changed, and the zinc cradle, towel, and bed cradle are replaced. This treatment is continued until all pockets are closed by granulations, the whole wound surface is granulating evenly, and the discharge has practically ceased. Then the wound is dressed in the usual way until completely healed. At times difficulties are encountered, such as the inability to utilize gravity fully, or the problem of keeping the part in position during sleep. The first of these is overcome by the insertion of a small gauze wick which hangs down over the edge of the wound; the second by the use of a suitable splint. The advantages of the plan are: Perfectly free drainage, absence of tendency to form pockets; absolute painlessness of the treatment; absence of all manipulation of the wounded part, and great economy in dressing materials.

Wounds Affecting the Bladder.—Georges Luys in his excellent article in the *Medical Record* (May 3, 1919) states that among the war wounds of the genitourinary organs, those of the bladder with those of the urethra are the most frequently observed. Vesical wounds are met with either associated with lesions of the neighboring organs or separately.

Associated bladder wounds are almost invariably combined with fractures of the bony pelvic girdle, more particularly fractures of the pubis, or with intestinal perforations; and in these cases the wound in the bladder is merely secondary, for the peritonitic symptoms which accompany intestinal injuries create such an alarming condition that the vesical lesions are relegated to the background. In other cases, the intestinal injuries are much less serious and the patients may survive. Adhesions develop and the patient may void his urine thru points at a great distance from the bladder. Of three patients under my observation, one passed nearly all his urine thru an opening in the upper part of the right thigh, and the two others passed their urine thru an orifice situated on the posterior aspect of the buttock.

Wounds of the bladder may sometimes remain undetected, and they should be very carefully looked for. Thus, when a patient complains of having had no natural micturition, while a catheter introduced thru the urethra shows the bladder to be perfectly empty, and at the same time there is a suprapubic swelling, there is reason to assume the presence of a vesical lesion, and in this case immediate intervention becomes imperative. Hypogastric section should be performed at once as offering the only prospect of a successful outcome for the patient.

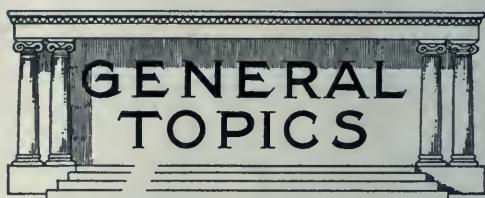
The most important rule for the guidance of the operator in the treatment of the bladder wounds thru war injuries is primarily the *absolute necessity* to insure a good drainage of the urine, first by freely exposing the wound and next by securing easy evacuation of the urine thru vesical drainage. This also adds to patient's comfort by preventing wetting of the bed.

The diagnosis of a wound of the bladder having been established, it is necessary in the first place to locate the opening into the bladder so as to introduce a drainage tube which guarantees the complete evacuation of the urine. It does not suffice, however, simply to insert a drainage tube into the wound, but we should assure ourselves that it is properly introduced into the bladder itself. In order to comply with this imperative indication, surgical intervention is usually required, with free exposure of the wound under local anesthesia, so as to ascertain that the drainage is thoroly established.

After a good vesical drainage has been allowed to exert its effect for a fairly considerable time (often a month or two), the borders of the wound may be seen gradually contracting, the suppurating tracts drying up, and the perivesical fistulas closing, while the neighboring wounds heal. It now becomes easy to re-establish the normal course of the urine by

means of a properly functioning permanent catheter.

Primary suture of a bladder wound seems to be hardly ever practicable in cases of war injury, on account of the associated lesions. Drainage is all that is left to do, the best drainage being by the anterior median route. Wounds of the lateral walls of the bladder do not necessarily call for a median cystotomy; the surgical treatment of the entrance wound and its tract guarantees a sufficient drainage in the majority of the cases; the later application of a permanent catheter will facilitate the closure of the urinary fistula.



The Physician Under Prohibition.—The inauguration of prohibition thruout the United States affects the physician not only as a citizen, but also as a professional man (*Chicago Med. Recorder*, Aug., 1919). Necessarily, the law provides some exceptions in the use of alcohol and various liquors containing alcohol for medicinal purposes. In a circular of instructions to internal revenue collectors and agents the commissioner of internal revenue states that Section 1 of the Act of November 21, 1918 (War Prohibition Law), provides that after June 30, 1919, until demobilization is proclaimed by the President, no distilled spirits, beer, wine or other intoxicating or vinous liquors shall be sold for beverage purposes. It also provides that the commissioner shall prescribe regulations for the sale of distilled spirits for sacramental, medicinal and other than beverage purposes. The commissioner directs that physicians may prescribe wines and liquors for internal use or alcohol for external use as stated previously. Such prescriptions must be in duplicate, both copies signed in the physician's handwriting. Not more than one quart of any liquor may be prescribed for a single patient at a given time and in no case shall a physician prescribe alcoholic liquor unless the patient is under his constant personal supervision. Prescriptions must show the name and address of the patient, including the street or apartment number, if any, the date when the prescription was written, the condition or illness for which prescribed and the name of the pharmacist to whom the prescription is to be presented for filling. Physicians should note carefully this provision: The prescription must designate a certain pharmacist and no other pharmacist can fill the prescription than the one designated. The physician must keep a record in which a separate page is allotted to each patient for whom alcoholic liquors are prescribed and must enter thereon, under the patient's name and address, the date of each prescription, the

amount and kind of liquors dispensed by such prescription and the name of the pharmacist filling it. Licensed pharmacists or druggists may fill such prescriptions, provided the druggist's name appears on the prescription in the physician's handwriting and provided the druggist has received a permit (Form 737), and provided he has qualified as a retail liquor dealer by the payment of a special tax. No prescriptions for alcohol or alcoholic liquors may be refilled. Druggists filling such prescriptions must preserve, in a separate file, one copy of each prescription filled and once a month must send to the collector of internal revenue in the district in which they are located a list showing the name of physicians prescribing alcohol or alcoholic liquors, the names of the patients and the total quantity dispensed to each patient during the month. If these reports show that a physician is prescribing more than normal quantity or that any patient, thru the prescriptions of one or more physicians, is procuring more than the normal quantity, the facts shall be reported to the commissioner of internal revenue and the United States attorney. Pharmacists are instructed to refuse to fill prescriptions if they have reason to believe that physicians are dispensing for other than strictly legitimate medicinal uses or that a patient is securing, thru one or more physicians, quantities in excess of the amount required for legitimate purposes. If the prescription is medicated or denatured so as to be unfit for internal use, non-beverage alcohol tax paid at the rate of \$2.20 per gallon may be used in filling the prescription, but if it is not so medicated or denatured, liquor tax paid at the rate of \$6.40 per gallon must be used. Physicians preparing or dispensing their own medicines or desiring alcohol for strictly scientific and medicinal purposes must file an application for a permit with the collector of internal revenue of the district in which they live. This application must be accompanied by a bond furnished by a surety company or signed by two individuals as sureties. Both the application and the bond must be in duplicate. On receipt of the application and bond, the collector of internal revenue will issue a permit to the physician authorizing him to have on hand or in transit a certain amount of alcohol or alcoholic liquors, the amount depending on the size of the bond. A bond for \$100 allows the physician to have on hand or in transit 20 gallons of alcohol or liquors. The physician must keep an account of all alcohol or alcoholic liquors purchased and on hand and must be ready at any time to produce his records and satisfy the internal revenue inspectors that any amount used has been for legitimate, medicinal, scientific and non-beverage purposes. Alcohol or alcoholic liquors purchased by a physician under these circumstances cannot be used for his own consumption. The instructions of the commissioner of internal revenue to all government officers is that the law and the regulations regarding alcohol and alcoholic beverages must be strictly enforced. Physicians should familiarize themselves with the instructions under the law and should carefully and rigidly comply with all requirements. In

case of doubt, it is best to secure a ruling or an opinion from the collector of internal revenue rather than to run any risk of violating the law.

Shall Opium be Proscribed?—There is good reason to believe, says Dr. Wm. Rittenhouse in *Am. Jour. of Clin. Med.*, Aug., 1919, that the attempt will be made to get Congress to pass a law that will deprive the medical profession of one of its most valuable remedies, or rather two of them; for, it is sought to prohibit the importation, manufacture, and sale of every form and derivative of opium and cocaine. If the attempt is made, we may be sure that it will be done as quietly as possible, and that no effort will be made to ascertain whether the great mass of the profession want such a law or not.

So, it behooves us to be watchful, not alone for this attempt, but for others that are likely to be made. We must make our influence felt. It is simply a question of every man doing his duty.

The interdiction of opium and cocaine is too large and important a question to be dismissed with a few words. A good many doctors, when the subject is mentioned, are disposed to treat the matter lightly. They say: "Surely, no one will ever attempt such an absurd thing." It does seem incredible that such a thing should be seriously proposed. Yet, we must not lull ourselves into a false sense of security, on the ground that the thing is absurd. A good many absurd laws have been enacted before now, and a lot more will be.

Watchfulness is our only security. It may be trite to say that eternal vigilance is the price of liberty, nevertheless, it is sadly, profoundly true. If we must fight for the liberty to relieve human suffering in the way that experience teaches us to be best, then let us not lose the fight in advance by an ill-founded confidence, that "the thing is too absurd to be true." Is anything too absurd to be attempted by our modern reformers?



Honorary Degree for Lieutenant-Commander Bainbridge.—At the annual commencement exercises of Coe College, Cedar Rapids, Ia., held on June 11th, the degree of LL. D. was conferred upon Lieutenant-Commander William Seaman Bainbridge, Medical Corps, United States Naval Reserve Force. This was given *in absentia*, Doctor Bainbridge not being able to be present on account of his official duties in the navy.

Nursing Schools Opened in Buffalo.—A post graduate course for public health nurses is to be given in Buffalo for sixteen weeks beginning September 29, under the auspices of the Buffalo University, the Buffalo Chapter of the American Red Cross, the Department of Health, the District Nursing Association, and the Department of Hospitals and Dispensaries.

An excellent teaching staff has been secured. A certificate will be given to all students satisfactorily completing the course, which will cost \$25.00. The class will be limited to thirty, and applicants must be registered in New York state or states having equivalent standards. Application blanks will be supplied by the University of Buffalo, College of Arts and Sciences, Niagara Sq., Buffalo, New York.

Red Cross Supplies Nitrous Oxide Gas.—The American Red Cross supplied great quantities of nitrous oxide gas to the American hospitals in France. To the United States Army hospitals 699,429 gallons were sent, to the Red Cross hospitals 495,629 gallons and to different hospitals 251,110 gallons, between September, 1917, and October 23, 1918.

Nitrous Oxide was first introduced into Europe by Col. G. W. Crile at the American Ambulance Hospital at Neuilly. The British learned the technic and used it in their dressing stations.

The Red Cross ordered a complete plant for the manufacture of Nitrous Oxide gas from the Ohio Chemical Company and this was established at Montreau, about fifty miles from Paris. A Frenchman, experienced in the making of the gas was secured to direct the work, the government permitting his release from the army.

The especial effects of the gas are said by surgeons to cause no lowered vitality, less toxæmia, less post-operative respiratory complications and the patient enjoys a quick return to consciousness.

The Oldest Man in the World.—It is claimed that "Uncle Johnny" Shell who has just celebrated his 131st birthday at Lexington, Ky., is the oldest human being in the world, having been born, according to his belief, in Tennessee September 3, 1788. His eyesight and hearing are only slightly affected and he is still fairly active. His eldest child is a daughter ninety-seven years old.

Typhus Raging in Europe.—An epidemic of typhus is raging in Europe and the Red Cross is taking an active part in the effort to stamp out the disease.

Henry P. Davidson reports that 275,000 cases have been found in the belt extending from the Baltic to the Black Sea and there is appalling distress in Poland, Lithuania and the Balkans.

The Red Cross has sent 200 representatives

to Poland in response to a pathetic appeal from Paderewski. Edicts calculated to stop the spread of the disease have been published in that country, one of them being an order that every person shave and bathe. About 100,000 cases have been reported and the death rate is high.

At the conference held in Carnes, recommendations were made to enlist Red Cross Societies to establish a permanent committee of medical experts of the allied countries to deal with the typhus problem.

Government Wants Workers in Venereal Disease Campaign.—The recently created Interdepartmental Social Hygiene Board of the United States Government is in need of a number of specially trained men and women to complete its organization. The United States Civil Service Commission has announced examinations for the following positions: Chief of division for scientific research, \$3,500 to \$4,500 a year; chief of division for educational research and development, \$3,500 to \$4,500 a year; educational assistant, \$2,800 to \$3,600 a year; chief of division of relations with States, \$3,500 to \$4,500 a year; chief of division of records, information and planning, \$3,500 to \$4,500 a year; supervising assistant and inspector, \$2,800 to \$3,600 a year; field agent, \$1,800 to \$3,000 a year. All positions are open to both men and women.

Applicants for these positions will not be given scholastic tests in an examination room but will be rated upon their education, experience and writings. Published writings of which the applicant is the author will be submitted with the application. For most of the positions a thesis on one of a number of given subjects will be accepted in lieu of published writings. The receipt of applications will close on November 4. Detailed information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or from the secretary of the United States Civil Service Board at the post office or custom house in any of 3,000 cities.

The law creating the Interdepartmental Social Hygiene Board provides for the cooperation of the War and Navy Departments and the Public Health Service of the Treasury Department for the prevention, control and treatment of venereal diseases. The duties of the Board as set forth in the act are (1) to recommend rules and regulations for the expenditure of moneys allotted to States for the use of their respective boards or departments of health in the prevention, control and treatment of venereal diseases; (2) to select universities, colleges, or other suitable institutions which shall receive allotments for scientific research for the purpose of discovering more effective medical measures for the prevention and treatment of venereal diseases; (3) to recommend such general measures as will promote correlation and efficiency in carrying out the purposes of the act; and (4) to direct the expenditure of certain moneys appropriated by the act.

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Congenital Syphilis.—Studies of the prevalence of congenital syphilis among children are of particular importance both in connection with the work of lessening infant mortality and from the standpoint of racial betterment. Blackfan, Nicholson and White reported the examination of 101 infants in a foundling hospital with only two positive reactions to the Wassermann test. Holt has reported the testing of 178 hospitalized children with no definite signs of syphilis, with an approximate percentage of 6.1 adjudged to be syphilitic. Churchill and Austin, in connection with a study of persons in the Children's Memorial Hospital, Chicago, concluded that the incidents of hereditary syphilis must vary greatly, considering that estimates have been made of from two to fourteen per cent. in Europe and America, their own figures being 3.3 per cent. The percentages of positive Wassermann reactions have been demonstrated to be notably higher in institutions for mental defectives, epileptics and children suffering from various other nervous conditions. One of the difficulties with the different reports lies in the variability of the results with the Wassermann test, due in part to the fact that the Wassermann reaction is more strongly positive in early syphilis than in tertiary or so-called latent syphilis.

Because of this conflicting testimony the investigation of DeBuys and Loeber to de-

termine the incidence of congenital syphilis in a foundling institution, *Journal of the American Medical Association* (October 4, 1919) deserves comment. They studied 106 infants and children, 57 males and 49 females, of whom 41.6 per cent. were under one year; 33 per cent. in children from one to two years; 11.3 per cent. children from two to three years; 9.4 per cent. children from three to four years; the remaining 4.7 per cent. in children from four to seven years. The Wassermann reactions were supplemented by luetin tests. The uncommon feature of their report lies in the fact that the Wassermann reactions were uniformly negative, but this was probably due to the fact that as part of the routine medical care, each child received twelve powders of one grain each of mercury with chalk, three daily for four days, followed by castor oil. All children with any skin eruption received treatment with mercurial ointment. At the conclusion of the ointment application or of the powders of mercury and chalk, syrup of ferrous iodide in five-drop doses, three times daily, was given to all children under six months of age. This fact probably may explain why the Wassermann reactions were negative, despite the fact that the luetin test showed itself to be a most valuable diagnostic agent. Their results, however, do not constitute any criterion for estimating the comparative values of the two tests in connection

with the determination of congenital syphilis, tho they do suggest marked differences in their value in the determination of congenital syphilis during early life, particularly in view of the fact that congenital syphilis is such a great source of infant mortality that only the milder infections permit children to survive.

Skin eruptions were present in many of the inmates, and 40 per cent. of the skin eruptions were syphilitic. Fortunately, the skin eruptions, together with other clinical findings, were of the greatest diagnostic value when the value of the luetin test was at its minimum, namely, during the first few weeks of life. The administration of iodides affected the luetin reaction, altho the lesion is sufficiently characteristic to be distinct from the normal positive luetin reaction. Congenital syphilis was found to be relatively more frequent in the so-called illegitimate children than in those born in wedlock.

The incidence of congenital syphilis, as determined by the study, was 83.96 per cent. of which 74.53 per cent. were revealed by means of the luetin reaction, and only 9.43 per cent. were diagnosed by means of the clinical findings and syphilitic eruptions.

It is difficult to draw conclusions from an investigation made from a selected group of children, particularly such as are found in a foundling asylum. The constitutional inferiority of children of this class is evidenced in the fact that with few exceptions all of the inmates were below the normal averages in weight, height, development and nutrition. It is impossible, therefore, to deduce any statistical values that might be applicable to the general infantile population. The facts, however, are sufficiently

important to point out the necessity for routine testing of children in foundling institutions, with a view to the proper administration of anti-syphilitic treatment as early as possible. The necessity for such a course is further accentuated in those institutions where extra-mural or boarding-out service is maintained. It is essential for the protection of families with which children are to be boarded, as well as for securing the greatest assurance of adequate medical care for the children thus placed.

A further item which merits continued investigation is the comparative use of the luetin and Wassermann tests among young children, with a view to fixing with greater exactness the relative values of each in the determination of syphilis during early life.

Are Postage Stamps Dangerous?—The ubiquity of microorganisms is part of common knowledge. The mere presence, however, of bacteria does not necessarily constitute a menace. Numerous organisms are of inestimable service in assuring the purification of streams, the fertilization of the soil and the destruction of undesirable material. The abundance of pathogenic bacteria forms the essential problem underlying the spread of disease.

From time to time, attention is drawn to many of the simple acts of life which contain a slight hazard to health and, unfortunately, such items are too frequently over-stressed. In the complexity of modern living, the high development of social intercourse, the growth of transportation, the increased contacts of human beings, it is impossible to live without some degree of exposure to a vast variety of incidents which might be productive of bacterial con-

tamination. It is unfortunate, however, to have life consist of a series of fears. There are sufficient real dangers from bacterial carriers to appreciate the minimum dangers which may be said to lurk in various routine performances of daily life.

Another example of suggesting a danger is to be found in the discussion of "The Postage Stamp as a Possible Source of Infection" by J. Diner and G. Horstman, *The Medical Times* (October, 1919). Postage stamps were secured from fifty different places and note was made as to whether they were kept exposed on the desk or were held for sale in a drawer or cash register. Laboratory tests were then made to determine the bacterial content of the stamps by shaking them out in a saline solution and then plating one cubic c.c. on an agar medium and counting the colonies after 48 hours incubation at 37° C. No stamp was free from germs. Twenty contained colonies too numerous to count. There appears to be very little difference in the growth secured from stamps which were exposed on the desk and those held in the drawer. The estimation of the different colonies, however, is by no means significant. More suggestive is the fact that there were recovered and determined thru the use of differential media and the examination of stained smears colon bacilli, staphylococci, streptococci, pneumococci and diphtheroid bacilli.

Unfortunately, no tests were made to determine the virulence of any of the bacteria recovered, wherefore it is difficult to determine what degree of danger was presented by the presence of these various organisms.

While it is undoubtedly true that had these stamps been moistened with the tongue, as is the all-too-common practice, the possibility of such organisms entering

the mouth would have been increased. It must not be forgotten that most oral cavities will reveal the existence of most of these organisms without making use of a postage stamp. Were stamps a grave source of infection, a very large percentage of the population would undoubtedly be suffering from some infection due to this cause because of the commonness of the method of licking postage stamps.

The gum utilized for making the stamp adhere constitutes a favorable medium for bacterial growth, and for this reason, possibly, it may be said that stamps are more dangerous than some other articles to which the tongue may be applied. If one considers, however, the vast numbers of ordinary stamps daily wetted by the saliva, and then thinks also of the number of fingers that go into mouths, and the vast number of only partially clean eating utensils which similarly enter the buccal cavity, there is a grave question as to whether there is a sufficient degree of possibility of infection from this source to warrant viewing it with any great alarm.

The mouth is a significant channel of entry for pathogenic bacteria and the unclean mouth is a potent source of danger to health. A large variety of disease producing organisms have been found in the mouth, some of which are dangerous to the individual and others of which apparently do him no harm. The sterile mouth probably does not exist, and a certain degree of protection has been developed by the mucous membrane so that there is more or less general success in overcoming the large proportion of the supposedly infective bacteria. Under these circumstances the mere demonstration of the bacterial content of postage stamps does not serve as an indictment against them from the stand-

point of public health. The hygienic lesson that people should not lick postage stamps is certainly sound; but, nevertheless, this practice is scarcely to be construed as a potential danger compared with the eating and drinking which are so essential for sustenance, but, nevertheless, are responsible for a large measure of bacterial contamination of the oral cavity.

ives; permanent segregation for those who need segregation; mental examinations of persons accused of crime and of all inmates of penal institutions; and long-continued segregation of defective delinquents in special institutions."

The significant features of this most excellent plan involve a form of cooperation, the need of which grows more apparent in public health work. Feeble-mindedness is not regarded as a health problem, or as an educational problem, or as a challenge to our courts or institutions, but is recognized as a complex condition demanding teamwork on the part of psychiatrists, psychologists, teachers, normal schools, parents, social workers, institution officials, parole officers, court officials, prison officers, etc. The very breadth of this vision is refreshing and stimulating. The great difficulty lies in the harmonizing of conflicting opinions so as to secure the adoption of even a small part of this complete program which at present is merely an ideal, and finds no expression in its fulness in any state of the Union.

A Program of Mental Hygiene.—The demand for an improvement in mental hygiene as part of the Child Welfare Movement is being met in various ways thruout the country. For some, the word "segregation" appears to suffice as an answer to all the questions relating to feeble-mindedness. This solution, however, is inadequate to solve the manifold difficult problems which are bound up in dealing with the mentally handicapped. Dr. C. Macfie Campbell, addressing one of the conferences of the Children's Bureau upon the subject, "Standards of Child Welfare," outlined a program which, for the time being, represents an ideal method for attacking the problem in the interests of the state. His scheme includes "The mental examination of backward school children; the mental clinic; the traveling clinic; the special class; directed training of individual defectives in country schools; instruction of parents of defective children; aftercare of special-class pupils; special training of teachers in normal schools; census and registration of the feeble-minded; extra-institutional supervision of all uncared-for defectives in the community; selection of the defectives who most need segregation for institutional care; increased institutional facilities; parole for suitable institutionally-trained adult defect-

All delinquents are not defectives, nor are all defectives potential delinquents. Some are educable, others are unfitted for ordinary academic training. The problem of ascertaining mental defectives in a community, particularly those of the moron group, calls for earliest attention. The greater the number of children that can be reached during the formative period of their lives, the more satisfactory will be the outcome of our efforts in their behalf and in the interest of the community. While it is true that all children theoretically are under the control of school authorities, large numbers manage to escape this jurisdiction. In extensive areas of the country no effort is made to include a mental examination of

school children and, in consequence, many school systems suffer from the presence of children in the regular grades who might better receive their training in special classes either in or out of the regular school or, indeed, by transfer to special types of institution where their complete welfare might receive greater consideration.

The development of our probation and parole system, the institution of juvenile courts, reflects a desire to deal fairly with juvenile delinquents, but this work cannot be satisfactorily administered without a more complete cooperation between legal authorities, probation officers, and psychologists, psychiatrists, and school teachers, truancy officers, and others having personal knowledge of the life, the heredity and the environment of particular children.

The necessity for mental clinics is apparent. The difficulties of instituting clinics in rural communities are numerous, but by no means insuperable, as the armamentarium of such clinics is exceedingly limited and lends itself easily to transportation. The adaptation of such traveling mental clinics to the needs of the various states is well within the powers of state departments of health. The essential factors are the recognition of the problem and the responsibility for its control being vested in a single state department, preferably the department of health, thru the establishment of a subsidiary division designed to care for feeble-mindedness in its general aspects. The fundamental work to be accomplished and the methods of dealing with feeble-mindedness necessarily are dependent upon a full knowledge of the problem such as may be secured thru the medium of a survey, such as has been made in various sections of the country.

All the advantages which might be secured for the defective child of wealthy parents should be made available for all feeble-minded persons in the community. When education is necessary, or the correction of physical defects, or segregation to prevent procreation, or hospital care, or probation, the needs of the community demand that equal opportunities and advantages be afforded without distinction to every type of family in the community. It is patent that this becomes possible only under a highly centralized form of administration, preferably under state auspices and direction, with a careful designation of phases to be cared for by individual communities. It is because of this that Dr. Campbell's program appears to be particularly meritorious and to commend itself for adoption by all states that recognize feeble-mindedness as a serious problem that too long has been neglected or indifferently regarded.

Physical Examinations of Recruits.—

The results of the physical examination of the first million draft recruits have been compiled in *Bulletin Number 11* of the War Department, emanating from the office of the Surgeon General. The conclusions point out specifically various contrasts between conditions noted in draftees from rural and urban centers. While the ratios of rejections differ in the various states for various reasons, and the interpretation of standards of examination did not possess at all periods the same degree of rigidity, the facts ascertained are none the less valuable.

Sundry questions arise as to the influence of city life upon the growing population, and some of them find their answers in the

results of the physical examination of recruits. Hernia, actual or incipient, is more influenced by the urban factor than by any other. Men from the cities show about 30 per cent. more defective vision than men from the rural districts. Otitis media is about 60 per cent. commoner in the cities. Flat foot, which, incidentally is the greatest defect, having been found in nearly one-fifth of the men examined, is markedly commoner in both the severer and slighter grades, in city men than rural men. As might be expected, chronic alcoholism and drug addiction were far more frequently present among those coming from cities than among those living in rural districts. Myopia and varicose veins similarly are more frequent among city men. Strangely enough, rejections for underweight showed a preponderance of city reared young men.

The prevailing defects existent among recruits from rural areas are infectious diseases; all forms of tuberculosis; venereal diseases, except syphilis; benign tumors; arthritis; nearly all nervous diseases, except paralysis of muscle and tabes dorsalis; all mental diseases except alcoholic psychoses; conjunctivitis of all forms; cataract; pterygium; retinitis; amblyopia and nystagmus; most diseases of the nose, except nasal polypus; respiratory defects, except pleurisy; ankylosis, and non-union of fractures.

The variation of defects in very large cities is exemplified, for example, by the diseases and defects noted among recruits from New York City. These men showed an excess of drug addiction, constitutional psychopathic states, otitis media, acute and chronic endocarditis, hernia, contracture of joints, hammer toe, loss of part of foot, underweight and cryptorchism. Strange as is may seem, among conditions strikingly

uncommon among recruits from New York City are pulmonary tuberculosis; hyperopia; conjunctivitis other than trachoma; hypertrophic tonsillitis; mitral insufficiency; varicocele; fibrinous pleurisy; hydrocele; bony ankylosis; deformities of the hand resulting from injury or infection; malunion of the lower extremities; curvature of the spine; hypospadias, and bullet and other recent wounds. That the above named conditions are not wholly dependent upon density of population is evident from the fact that in Chicago the exceptionally common diseases and defects were chancroid; simple goitre; exophthalmic goitre; arthritis; hyperopia; hemorrhoids; varicose veins; varicocele; loss of fingers; curvature of the spine; defective physical development; overweight; hypospadias and bullet and other recent wounds. There was, on the other hand, less than the average of constitutional psychopathic states, eye and heart defects; hernia; flat foot and pronated foot.

These variations in defects are indicative of numerous interacting factors such as climate, racial variations in the population, the nature of industries, the character of patients, housing and methods of recreation. The conditions due to defective heredity do not stand out with great prominence.

Among some of the conclusions of particular interest, one may mention that defective physical development was found in exceptionally high proportion in the New England States. Mitral insufficiency was in excess of nearly 60 per cent. in recruits from the rural districts. Considering generally large and small cities in rural districts, the amount of pulmonary tuberculosis and venereal diseases is inversely correlated to the denseness of population. Defects of vision are directly correlated to the size of cities.

Valvular heart diseases are roughly and inversely correlated to the density of population.

Much may be learned from an analysis of the figures presented to assist state health officers in formulating programs designed to meet the specific needs of their citizens as reflected in the figures for rejection. Varicose veins, for example, constitute a problem in Minnesota and Wisconsin, while trachoma is of far greater significance and importance in Kentucky, Illinois, Indiana and Missouri. Goitre is particularly common in the territory adjacent to the Great Lakes. Drug addiction requires serious consideration in the cities of Kansas.

It is a rare experience to have an opportunity to weigh the problems of the young men in the United States in the manner made available thru the examination of recruits. The statistical analysis of these examinations under the direction of the Surgeon General constitutes a most valuable addition to our knowledge of men as they are to be found during a period of greatest virility and strength. Further reports that are to be issued will supply further statistical material which will serve to correct the errors that may have been made in the earlier examinations and establish reliable figures representing the imperfections of those called to the colors.

It must not be forgotten that the mere fact of rejection for military service does not connote complete unfitness for civil or industrial life. The trials of the soldier are far more severe than those experienced in civil life. While possibly one-quarter to one-third of males, 20 to 30 years, are physically unfit to fight, their handicaps may not be such as to materially interfere with their successful living under the ordinary conditions of civil life. Even if only fifteen

per cent. of males 20 to 30 years old possess a serious physical handicap against normal civil activities, the mere number is sufficient to indicate the necessity for decreasing them insofar as may be possible. Probably comparatively little can be done for the existent generation, but everything remains to be attempted for the protection of the growing generation.

Typhoid Control.—In a discussion of typhoid fever in New York City during 1918, *Monthly Bulletin, The Department of Health* (August, 1919), L. I. Harris calls attention to one or two items which are of the utmost importance in connection with typhoid prophylaxis.

"We have found it difficult to secure the cooperation of private physicians in educating the members of this community to the tremendous value of the protection against typhoid fever, which can be secured thru immunization." Despite various efforts at publicity thru utilization of placards extolling the virtues and advantages of typhoid immunization, the number of immunizations made by the Department of Health during 1918 was very much smaller than during the preceding year. It is obvious that any campaign of public advertising in support of a theory of preventive medicine requires substantiation and support by the medical profession. It seems almost unbelievable that family physicians should be adjudged guilty of a lack of interest or of a failure to properly participate in supporting the efforts of the community in lowering the typhoid morbidity and mortality rate.

While it is true that the morbidity rate from typhoid fever in New York decreased

from 68 per hundred thousand in 1898 to 21 per hundred thousand in 1918, and the case mortality rate fell from 30 per cent. to 16 per cent., the results can scarcely be regarded as satisfactory. Typhoid fever is one of the best examples of preventable disease whose continued existence casts serious reflections upon public health administration and municipal sanitation. The typhoid fever rate has been properly regarded as an index of the attitude of communities toward public health and sanitation. The reduction of this single disease to the vanishing point is desirable, not merely because of its own seriousness, but because of the manifold advantages that will accrue to the community thru the efforts to overcome it. To have any measure of the blame for failure on the part of public health authorities fastened upon the medical profession is unfortunate, because physicians are in possession of all the facts relative to the benefits of typhoid immunization, and know full well the benefits which are to be derived from an extension of its practice.

A second criticism which merits consideration lies in the statement "In a relatively large proportion of the cases admitted to general hospitals, supervision for the purpose of enforced sanitary precautions and for other purposes does not seem to have been as rigidly exercised as in the supervision of cases treated at home." Particular reference is made to the fact that general hospitals have discharged patients who have survived typhoid fever without referring their records to the Department of Health prior to their discharge, so that a laboratory examination might be made to determine the presence or absence of typhoid bacilli in the intestinal tract. It is patent that such individuals discharged from hos-

pitals without proper safeguard constitute a group among whom there may be numerous bacilli carriers free to go about and serve as a menace to those with whom they come in contact.

The importance of controlling typhoid carriers is beyond argument. The practice of releasing patients who have suffered from typhoid fever only after two stools have been found to be negative for typhoid bacilli is of great importance. The experience of the Health Department has indicated, however, that public safety is better assured by a requirement that all individuals who recover from typhoid shall "for a period of from six months to a year be required to submit specimens of stools at regular intervals, so as to make certain that we are not releasing carriers who may move about freely and prove to be a source of infection to others." Some municipalities demand that suspected carriers enter a hospital under the jurisdiction of the health department for a day, at stated intervals, so that stools may be obtained under proper supervision with a view to preventing the substitution of a stool obtained from a normal person for that of the suspected carrier. In this direction, hospital authorities should freely cooperate. Their responsibility to the community is not ended when the typhoid sufferer leaves the institution. From the standpoint of public health, the individual is not cured until his body is freed from the typhoid bacilli that may lurk in the intestinal tract. Incidentally, it may be remarked that hospitals might be more rigid in demanding the immunization of all persons who come in contact with typhoid sufferers. This applies particularly to internes, nurses and orderlies, whose protection is essential not merely for the sake of their own health,

but in the interests of the entire hospital and the community it serves.

During 1918 less than one per cent. of the total number of typhoid cases reported gave a history of having received immunizing doses of typhoid vaccine. While these figures cannot be fully interpreted without a knowledge of the relative proportion of the population already immunized, at first glance they are highly suggestive of the dangers existent from non-immunization. The history of the military and naval forces during the war attests the tremendous advantages conferred thru the protective inoculation. There is no reason why similar advantages should not obtain during times of peace.

The two main factors today, outside of sanitation, for the prevention of typhoid fever are personal immunization and the control of typhoid carriers. The responsibility for securing both of these, while primarily resting upon health departments, is no less an obligation of the medical profession. Where sanitation is particularly lax, the necessity for immunization is tremendously increased. It is impossible, however, without mandatory public health practice to succeed in immunizing a community without the heartiest support and cooperation of the medical profession. If it were possible for each individual physician to recognize in himself a small but powerful cell of the public health organism, he would function more vigorously for the benefit of the entire community. The least that can be said is that criticisms of the medical profession for failures to carry out sensible provisions of modern hygiene and medicine should serve as a stimulus to greater activity. If physicians fail to support the responsibility of health authorities, one can scarcely blame laymen for objecting to pro-

visions of law in their own behalf concerning whose value they are in doubt. The best medium for advertising the benefits of public health measures should be the profession itself, which stands as the exponent of modern preventive medicine.

Rural Health Administration.—The recent study of Rural Children in Selected Counties of North Carolina (*Rural Child Welfare*, Series No. 2) is highly suggestive of the numerous problems confronting county health officers or State departments of health interested in raising health standards. The population of the areas studied is uniformly native born American of native percentage, so that the question of foreign influences is not involved. The main difficulty apparently is one of sanitation, with a lack of pure water and the more pronounced deficiency of privies, rendering soil pollution almost inevitable.

The most striking finding is the high maternal death rate from causes pertaining to child birth in the lowland county, 41.5, and in the mountain county 21.9 per hundred thousand population as compared with the rate of 15.2 for the entire area of death registration. The high figures are largely due to the significantly high rate of 93.9 among negro women. Patently, facilities for protecting the life and health of mothers during childbirth are totally insufficient. In the lowland county, one-third of the white mothers and nine-tenths of the negro mothers were attended by midwives. Few women had received any prenatal advice or attention, while nursing care at confinement consisted largely of the services of untrained relatives and neighbors. Trained nursing during confinement is totally lacking in the

mountain county, and inability to secure medical attention at childbirth is not rare, and even where the physician was in attendance, post-natal visits were rarely made. The demand for rural nurses for prenatal education and obstetrical care is obvious and immediate.

Fortunately, the infant mortality rate is not very high, probably because of the almost universal breast feeding of infants, frequently continued well into the second year. Nearly half of the infant deaths occurred within the first two weeks after birth, probably from causes incidental to dystocia or disease during pregnancy. The reduction in this mortality rate may best be offset by further prenatal care.

The rural districts of the country are suffering from ignorance even more than from poverty. The education of citizens, however, is distinctly within the range of state function, and, in consequence, the responsibility for existent deficiencies lies at the doors of the State departments of health. The need for public health nursing, based upon a plan of county nursing service and community nursing, is manifest. To many, public health nursing is still regarded as an interesting experiment, born of a charitable interest in various classes of society. It is time that nursing service was removed from the category of charitable enterprises and placed among the public health necessities and essentials where it belongs.

Recognition of the right of individuals in rural districts to a type of health protection equal to that afforded to residents of urban districts should not be further ignored. Large cities possess the means of supplying the health needs of their own communities. The scattered population, however, in rural sections makes it difficult

to provide the necessary agents without the cooperation and support of larger units of the population such as the county, a group of counties, or the State. Medical inspection of school children, the provision of prenatal care and adequate obstetrical attention, education in the home in matters pertaining to hygiene and sanitation are equally if not more important, in rural communities than in urban sections.

The conditions revealed by the studies in Kansas and North Carolina clearly indicate the dire necessity of increasing appropriations for education in rural sections, but education in itself, valuable as it may be, does not suffice. Some follow-up scheme must be devised which makes it possible to give direct instruction in the home thru the use of varied types of public health agencies essential for carrying out the principles and plans enunciated in bulletins, pamphlets, posters, monographs and lectures.

Physicians practicing in rural sections are greatly handicapped in prophylactic work owing to the distances that must be traversed in reaching the various homes and because of the lack of facilities for maintaining healthful conditions in them. The lack of sanitary homes, overcrowding, insufficient food of the right sort, poor water supply, and unsanitary privies complicate the situation. The real necessities of the rural communities are not met thru books, papers and magazines, county fairs and the establishment of institutions for defectives, delinquents and dependents. There is an imperative necessity for socializing and humanizing public health work in rural communities, in a fashion that only becomes possible when the machinery of public health work is enlarged so as to afford every opportunity for health to the normal part of the population whose worth to society

is of the maximum importance. Difficulties are numerous and obstacles great, but these do not suffice to excuse or condone a state of hygiene and sanitation which reflects most seriously upon the present state of public health administration in the sparsely populated sections of the country.

Internationalizing the Fight Against Venereal Diseases.—At the Medical Conference of the Inter-Allied Committees of Red Cross Societies, various sub-committees discussed specific topics and presented plans of organization for combating particular conditions, whose conquest is necessary for the advancement of public health and child welfare.

The Section on Venereal Diseases, in its report, embodies various principles which involve: (1) Measures for the protection of individuals not yet infected; (2) Measures for the elimination of conditions of environment favoring the dissemination of venereal diseases; (3) Measures for the discovery, treatment, control of individuals already infected; (4) Measures for accurate observations and recording of data relative to efforts to combat venereal diseases on lines already established; (5) Measures for furthering research upon venereal disease infections and the demonstration of new methods for combating venereal diseases; (6) Measures for education.

It is patent that the activities involved depend upon education, research and an increase in the number of centers of activity against venereal diseases. It is difficult to arrange these three in the order of importance but, obviously, education must be emphasized fundamentally in order to stimulate public opinion, rouse lethargic consciences, and awaken a powerful desire to

work cooperatively on the part of doctors, nurses, legislators, social workers, moral and religious workers, as well as the vast group of un-thinking and high-thinking individuals termed "the general public." It is manifestly necessary that a comprehensive program be adopted if results are to be achieved commensurate with the physical, social, and economic importance of venereal diseases. The necessity for popular propaganda for the control of syphilis, gonorrhea and chancroid, no longer requires argument.

The Aid of the Red Cross.—The importance of having the backing and active assistance of the Red Cross Societies thruout the world is apparent. The direction of the huge forces gathered together for emergent war work will require guidance into new channels of effort, and the massing of the Red Cross forces in an attack upon any problem is bound to result in a wide degree of popular education with valuable results.

A comparatively few years ago a mere handful of physicians and laymen were interested in attacking the venereal diseases. Despite the fears of many that this subject was too dangerous for public discussion, a constructive plan of propaganda and organization was devised and fostered. A new impetus was given to the movement by large exhibits, particularly that held in connection with the International Congress of Hygiene and Demography at Washington. Growth was slow, but adherents to the cause took on a new determination and thru the activities of the American Federation of Sex Hygiene and its publications, the movement increased in intensity and worth. The Great War marked a critical time in the evolution of social hygiene. The Na-

tional Government early recognized the importance of protecting its soldiery insofar as might be possible from the hazards of venereal infections. The united efforts of the Departments of War and Navy, the commission on Training Camp Activities, and the United States Public Health Service brought about a tremendous wave of activity and reform looking toward the establishment of a higher moral standard at home and abroad. The National efforts have been crystallized by the establishment of a Division on Venereal Diseases under the able leadership of Colonel C. C. Pierce, which is today a most active force in stimulating public opinion, in promoting national publicity, and in organizing state and local action.

The achievements of the past two years bear witness to a vast amount of constructive effort, supported by the interest and enthusiasm of a war-swept state of mind. For the continuation of the lines of development thus far established, and their extension in various directions, it is essential to keep together all sections of the body politic, whose interests were first secured thru the exigencies of war work. It is, for this reason, therefore, that the advent of Red Cross Societies into the field of social hygiene must be hailed and encouraged.

The International Conference marks the completion of efforts at initiating new machinery for fighting the black plagues throughout the world. The vastness of the forces aligned must be construed as an indication of the seriousness of the problem. Behind all the machinery, however, there is the hand and mind of man, and it is the human effort, thought, and power, which must be relied upon to support the comprehensive program devised at Cannes, if success, however relative, is to be obtained within the next decade or generation.



Widening the Doctor's Sphere.—It was extremely interesting, and at the same time illuminating, to read the newspaper reports of the surgical congress. In almost every case they emphasized the simple, easily understandable nature of the address. The reporter, expecting to be buried under an avalanche of technical verbiage and fearful lest his ignorance of things medical and surgical render the subject discussed entirely unintelligible, found to his utter amazement and pleasure that he could understand and appreciate almost everything that was said, in fact that he could follow the meaning of the speaker as easily as the professional men present. Commenting on Dr. William J. Mayo's opening address, one newspaper remarks: "He escaped from the realm of the technical and discussed a number of highly important topics in a way that anyone could understand and appreciate." That, the writer explains, was due to the fact that Dr. Mayo treated his auditors not mere as fellow surgeons, but also as citizens concerned in the solution of all the problems that confront the general public. The newspapers have been quick to appreciate the new attitude that is being assumed by both surgeon and physician. Hitherto they had been accustomed to relegated reports of such conventions to some obscure page, feeling that it did not constitute news of wide interest; but now, for the first time, both the surgical congress and the convention of women physicians were not only reported minutely from day to day, but were made the occasion for illustrated articles and popular interviews. That the daily papers shoult adopt the intricate and highly specialized subjects of medicine and surgery as matter for their columns is a most gratifying comment on the new character these callings have assumed, the altered attitude the professional man has assumed. No longer is medicine shrouded in a veil of mystery, no longer does the physician hand down his diagnoses and

judgments from an altitude. He has descended into the midst of his fellows, he speaks their language, he appeals to his patients as a human to humans. What has happened to conventions has happened to the publications of the profession: addressing themselves primarily to professional men, they are nevertheless read and understood and often enjoyed by the laity, who are no longer confounded by a degree of technicality which was a form of snobbery and a deliberate weapon against the admission of the untutored masses. Now the physician and the surgeon deliberately court the masses, deliberately make their appeal in language simple and non-technical enough to be understood by the vast public; for both physician and surgeon have come to realize that their sphere has broadened enormously in recent years, that their mission is something more than writing prescriptions and cutting live tissue, that their calling is an invitation to a wide usefulness and a wide social service of which they are availing themselves in greater and greater numbers.

Hence it is that the recent conventions have given themselves over so uniquely and admirably to the larger problems of medicine and surgery—the social, industrial and moral problems, rather than the strictly professional problems. Particularly was this true of the convention of women physicians. A list of the subjects that were discussed at this convention is extremely illuminating and shows the changing nature of the general attitude toward the public on the part of the profession. Disease was discussed, but it was discussed almost entirely from its social side. Sanitation came up numerous times, but sanitation as a community responsibility, rather than as a problem in medical science, was the point at issue. A resolution was passed urging that "provision be made in the covenant of the League of Nations for an Industrial Bureau of Hygiene." It was recommended that persons of both sexes be urged to undergo physical examination before marriage and also that there should be regular physical examination of children up to the time they leave school. Authorities were advised to take measures for provision of good food at reasonable prices and that the public be educated in food values. Physicians were urged to make themselves familiar with condi-

tions under which workers were employed and to work for the removal of those responsible for ill health. A unanimous sentiment in favor of accident insurance for workers, as well as insurance against sickness, neither at the expense of the employee, was expressed. And in addition there were a host of kindred subjects with which hitherto the profession has concerned itself little or not at all.

It has been the policy of AMERICAN MEDICINE in the past, and it will remain so in the future, to encourage this broadening of the doctor's sphere, to report and stimulate any effort to identify the practice of medicine with the larger, more vital, more urgent social tasks. If at times it may have seemed that we were going far afield in discussing industrial, social or ethical problems, it was with the studied and deliberate purpose of attaching one more interest to the ever-widening, ever-expanding usefulness of the doctor. It is for this reason that what Miss Jane Addams had to say at the convention of women doctors assumes such great importance. And it is for this reason that Dr. Anna Moutet's address on the French attitude toward illegitimate children seems of such great moment.

Depopulation and Illegitimacy.—It is significant that it was a French doctor, Mme. Moutet, of Lyons, who arose at the convention as the champion of the illegitimate child. The circumstance merely emphasizes the familiar observation that France has always led the other nations in its enlightened attitude toward the unmarried mother, but it serves to emphasize also the oft-repeated assertion that morality is merely a matter of geography. The difference between our attitude and that of the French toward illegitimacy is merely one of population demands. The French have as lofty an ideal of marriage and of the family as we, and their attitude toward illegitimate children is not a frivolous one. In comparing the two nations, the determining factor, however, is that here the population is growing rapidly and constantly, while in France the population is diminishing rapidly and constantly. Hence we can afford to maintain our severe condemnation of the bearing of children

out of wedlock, while the French cannot do so. Their need of children is so great that they are constrained to waive moral considerations and to strain their ethical code in order to add to their diminishing numbers. It was, therefore, a French woman who dared to say: "It is important above all to favor the rate of birth by all means, to do away with all obstacles in the protection of all children indiscriminately. The procreation of a child must no longer be held as a disgrace or as a burden. The girl mother must be lifted, the prejudice which makes her an object of censure must be combated and if irregular birth is no longer a disgrace to the child, neither must it be a dishonor to the mother. She must find in society for herself and her child the support which in the past was refused her."

Without doubt Mme. Moutet's remarks found a ready and sympathetic response in the hearts of her audience. They were physicians, but they were women first of all; and they probably felt that Mme. Moutet's viewpoint was humane, generous and enlightened. But that the general public of this country will accept her attitude or approve of it is questionable. Anglo-Saxon morality is inflexible, stubborn, unduly harsh even, and it will be a long time before we in this country learn that there may be better places for an erring girl than the reformatory or the house of correction. It will be a much longer time before we sink so low as to feel gratitude to a woman for bringing a child into a world sorely in need of children and pay her for her contribution, as the French are doing. The morals of a race change very slowly, and it is only the threat of a national calamity that can precipitate a quick change. The danger of depopulation, even with the prospect of extensive emigration in the future, is not very great in the United States; and it is only such a threat that could alter our attitude toward illegitimacy. To the average American, what the French are doing, what they plan to do on a more generous scale in the future, is nothing less than an encouragement to immorality. But the French, who are shrewder than we in such matters, know that the principle of generosity where children are concerned is not an encouragement to immorality, but an alleviation of it. They frankly acknowledge the inevitability of error and they courageously make the most and the best of it. We

have yet to learn in this country that our corrective and punitive measures are of little, almost no, avail, and that we are merely, thru a mistaken policy, adding to our liabilities when we might be augmenting our assets.

Fatigue and Its Moral Dangers.—Miss Jane Addams, speaking at the Conference of Women Physicians, called attention to the moral danger involved in fatigue. Miss Addams, always a careful and dependable observer of industrial conditions, spoke briefly and scarcely emphasized an observation which brings to a light a situation of momentous importance: the unprecedented number of women who have entered the industrial world permanently as a consequence of the demand for labor during the war, and the danger of lowered moral resistance accompanying the increased demand on their energies. "We have much to learn on the psychologic as well as on the physiologic side of the labor problem," she said. "The connection between fatigue and the lowering of moral resistance has not yet been fully worked out, but there is an appalling connection between them. I wish very much some connection would be made between moral health and the unnaturalness of women working in factories without stimulus to their intellects or affections." Miss Addams' observation of the relationship between fatigue and lowered moral resistance disturbs the conventional belief that idleness is one of the most frequent inspirations to mischief. Work has always been prescribed for those who fell into evil ways because they had not enough to keep them busy. It never occurred to the well-meaning advisors of work that such work might itself involve as great a temptation to mischief as idleness. It has always been a commonplace belief that hard labor, with the consequent fatigue, rids a man or woman of his or her inclination toward lewd or immoral diversion. Physically, that is true enough; but psychologically, the reverse is often the case.

In England, where women in large numbers flocked to the munition factories early in the war, a serious situation developed in a short time. It was almost immediately apparent that the women, who hitherto had led conventional, circumscribed lives, were indulging in appalling excesses—excesses of

drinking, smoking and immoral practices. In fact, the immorality of the women munition workers became a serious concern throughout the country. At the end of a difficult day's work, exhausted as they were with their labors, they did not return to their homes. They congregated in the cafés and centers of diversion, spent their money freely and conducted themselves with alarming freedom in their association with men. In the light of Miss Addams' observations, this is easy to understand. Their physical energies were at low ebb, but so was their moral resistance. Physically they were not disposed to moral weakness, but mentally they were more than ever so disposed. And it is the mental element that is the more important of the two. The old adage, in view of later experience, may be altered to read: "The spirit was willing, *tho* the flesh was weak." Hard work, *tho* it may exhaust the body, often acts as a stimulant to the senses; and, if these senses are not properly directed, havoc is bound to result. In this country, unless proper measures are taken, the same problem will confront us as it did in England. Countless women are still occupied in factories and the various industries. For these women there must be found an outlet which will direct their natural desire for relaxation and recreation into approved channels. At the end of a hard day's work they must not be left to their own tired resources. As Miss Addams briefly hints, they must be supplied with some stimulus to their intellects and their affections which will serve to strengthen their moral resistance. Music, literature, municipal dances and entertainment of a wholesome, instructive type should be accessible at all times. What these working women are to do with their leisure should be made the concern of the community. If it is not, their leisure will become the very vexing problem of the community in a short time. The problem is a serious one, one in which the doctor may be a very helpful factor, in cooperation with the social worker.

theories about race traits. There was among them a great number of photographs which revealed only facial characteristics, but the few which showed the figure seemed to be ample evidence to the public censors that the man who owned them was a lewd and immoral collector of lewd and immoral photographs. It was inconceivable to them that these vicious plates could be prized for anything but their provocative sexual nature. They were confiscated and, if we recall correctly, destroyed. The incident emphasizes only too clearly the amazing misconception of our moral censors concerning the significance and influence of the nude on the average, healthy mind, a misconception which, one is tempted to think, borders very close on degeneracy. It may seem a mere trick of verbiage thus to accuse the moral mentor of himself being guilty of the fault for which he persecutes his victims, but the theory of the moral instability of most censors of morality is founded more in fact than in fancy. Indeed, one may say that nine times out of ten the moral censor is more completely the victim of a distorted and perverted attitude toward sex than the morally censored. Every man and woman has some degree of experience with the nude, whether he be artist, physician, scientist, or layman; and the writer has yet to find a single individual of normal, intelligent, honest attitude toward life who does not acknowledge that the nude has always been a chastening influence in his life. The association with the nude is always a pure one. Some are impelled to purity by the ugliness of the nude human form. Some are thus influenced by its beauty. If there is any difference, that is the only one to be found. Perhaps the most common and most eloquent example of the influence of the nude may be found in the art school classes. There a group of students will be busily engaged in drawing from the nude figure without seeing anything in that figure but the beauty which they are trying to capture and transfer to paper or canvas. The model is not a human being: she is merely an inanimate example of art. And the best proof that it is clothes and not nudity which stirs adventurous, romantic, perhaps wicked motives, is the fact that as soon as the model dons her clothing she at once (and not till then) becomes a lure to the men students. If nudity were more compelling sexually than the clothed figure, then the Metropolitan Art Museum would

Morality and the Nude.—Some time ago a scientist was prosecuted for having in his possession a number of photographic plates of the nude female figure. These plates were only part of a collection which this scholar employed to illustrate his

draw larger crowds than the burlesque houses of New York. Which is the more disturbing influence, in a moral sense, the Venus de Milo or the scantily garbed burlesque favorite? There can be but one answer. Yet the burlesque houses continue unchallenged by the moral censors, while the Venus de Milo is tolerated as a dangerous influence merely because the prestige of generations of admiration protects it.

If the moral censor feels that the nude has a vicious, harmful influence on the public, he thinks so because the nude has a vicious, harmful influence on himself. He judges the effect on others by himself—a very mischievous and misleading procedure. For, as has been stated, on the average healthy, normal individual, the effect of the nude figure is completely disarming of all vicious inclinations. The average moral censor thus reveals himself as not the normal type. And, in fact, a close study of the activities of moral censors, reveals a tendency toward the abnormal in them: either they are sexually hypersensitive and imagine all other people to be like themselves, or they are sexually perverted and are victims of reflexes of attraction or repulsion which are not within the experience of the normal type. Above all, they cannot be happy individuals. A contented person is rarely found on a committee of persecution. Such committees when they are voluntary are generally made up of an element that is either unsatisfied or sated. It has had either too much or too little of the experience it is trying to suppress in others. It is not the normal type. It would be interesting if some day a psychoanalyst would reveal the unconscious motive which guides a moral censor toward the release of his libido by the extreme and unintelligent measure of persecuting those who are normal enough to release their libido in a natural, normal, innocent manner.

troubled times. It is true, his teaching, his splendid patriotism and his fine interpretation of Americanism constitute a legacy that cannot fail to enrich every one of us and enable us to better realize the worth of our citizenship in this, the best country on earth. But how much it would mean if the Nation today could feel the influence of his sane and sober thought, the inspiration and patriotic glow of his spoken word, the love of this country he could make so real and worth while!

Many and various have been the tributes paid to Theodore Roosevelt. All have told of the worth of the man and the poignant sorrow caused by his death. But none has better expressed the place he filled, or the part he played than the words of appreciation by Curran Pope in a recent issue of the *Indianapolis Medical Journal*. We are unable to print these in their entirety but the following sum up so well the life and works of this great American citizen, that we esteem it a privilege to reproduce them.

"He was an American, man, citizen and soldier. Democratic to the core, he loved his country and its people above everything else. No one seemed ever to question (successfully?) this. No matter what mistakes he may have made, and they were many, for Theodore Roosevelt was human, we all agree they were the mistakes of wisdom and not those of intent. Not even his bitterest enemy questions his Americanism, his love of his flag and his undying patriotism. He was a born leader of men. Few in America can or have been able to rally a hundred thousand men to a standard, ready to do or die, because he whom they loved and respected was ready to lead them, they cared not whither, even though it be to the carol of the great guns. In my opinion, this one incident in a career so replete stamps him with attributes of courage, power and personality no other in this broad land of ours has ever possessed. And history will in time give him his rightful place as a great American. When the passage of time cools the ardor of men, when just judgments can be formed, the intellectual gifts, the qualities of hand and heart will be truly appreciated. His friends will remain staunch and true; embittered partisan feelings will fade; in his death enmities will cease, and the real American will estimate him for what he has been and remember him for his rich contributions to this country's cause."

Theodore Roosevelt.—As we go to press, meetings commemorative of the birth of Theodore Roosevelt are being held all over the country. Universal is the regret felt by the American people that this great man has been taken from us, that we are denied his counsel and inspiration in these



ORIGINAL ARTICLES

CAUSES, DIAGNOSIS AND TREATMENT OF CHRONIC COUGH.¹

BY

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Every practitioner of general medicine is quite familiar with a rather large group of patients who consult him because of a persistent troublesome cough. Sometimes such cough is of many years standing and is associated, consequently, with very marked pathologic changes in certain body structures; but quite often the cough has been present for only a few weeks or months, and yet gives every sign of becoming permanent since it does not yield to any of the ordinary remedies prescribed in such conditions. There is a history of frequent colds, of asthma or hay fever or some severe acute illness such as influenza from which the patient recovered in every detail except this distressing symptom which "seems to hang on" as the vernacular puts it.

These patients are not very welcome in the physician's waiting room because they disturb and drive away other patients who think that everyone having a cough must be a victim of tuberculosis. Moreover, it

requires much time and study in some instances to establish a diagnosis, much more time and study than the hard-driven general practitioner can spend, and therefore the "expectant method" of treatment is the one most commonly adopted.

The causes of chronic cough fall conveniently under three heads, altho the classification might doubtless be extended, but for present purposes these three will suffice:

- A. From mechanical irritation of vagus.
- B. From bacterial infection somewhere along the path of the airways.
- C. From "sensitization" to proteid toxins and to pollens.

It is well known that almost any irritation of a peripheral organ will produce reflex cough. For example, in examining the auditory canal, or in removing cerumen the patient sometimes coughs quite violently for a minute or so. Pressure against the lingual or faacial tonsils likewise brings on a spasm of coughing, and there are cases of diseased tonsils, that is disease of the tonsillar crypts, associated with cough which are entirely relieved by tonsillectomy.

Pressure upon the vagus thru new growths or enlarged glands sets up this same cough reflex. Aneurysmal cough is well described in the symptom-complex of the older writers on medicine as well as by

¹ Read before the Greater N. Y. Med. Ass'n, April, 1919.

the more modern authors. Goitre and cervical glands are occasional causes, altho pressure here tends more to the paralytic than to the stimulative or irritative lesion. Elongated uvula with a constant sensation of tickling in the throat is responsible for irritation of the vagus fibres supplying the epiglottis, and the latter is also influenced in turn by the pressure of an hypertrophied lingual tonsil at the base of the tongue. New growth of the esophagus in the early stage irritates the vagus and causes cough, while pressure symptoms at a later stage may cause the usual paralysis. Foreign body in the trachea, bronchi or lungs may set up very great irritative cough which later on is associated with the expectoration of large amounts of pus due to the co-incident bacterial invasion. The cough of chronic passive congestion of the lungs due to heart, kidney or liver disease has been often described in the text books and has been corroborated clinically.

There are doubtless many other mechanical causes but it is quite unnecessary to multiply them here. It is sufficient to insist that every peripheral source must be investigated in order that nothing be overlooked; for an accurate diagnosis is indispensable to any system of rational and effective treatment.

The second group of causes and by far the commonest is that in which there is bacterial infection somewhere along the airways. It is with this group that we are chiefly concerned in this essay.

Any chronic infection of the respiratory tract must have been at one time acute, and hence at that period of the individual's history was curable since the patient did not succumb to it. The reason why no cure was effected is either because the body resistance was inadequate to rout the enemy

entirely, or because the aid afforded by medication or general management of the case was likewise inadequate. Neglected or improperly treated "colds" are the commonest causes of chronicity of mucous membrane disease, for it is commonly conceded now that so-called colds are infectious and communicable, and as such are a menace to public health. Says Rosenau: "Could the sum total of suffering, inconvenience, sequelae and economic loss resulting from common colds be obtained it would at once promote these infections from the rank of the trivial into the rank of serious diseases."

Bacteria capable of causing the clinical entity described as "a cold" are probably always present on the respiratory mucous membrane, especially in the upper tract. These are the exciting cause; the predisposing causes being chilling of the body surface, exposure and fatigue. Not only rhinitis but many other infections may follow chilling of the body or wet feet, notably pneumonia and that vague thing which we call "rheumatism". Just so soon as the body resistance falls below normal the bacteria are ready to do their work and will succeed unless there are sufficient antibodies to offset even an overwhelming number of bacteria. Emery says that when the surface of the body is chilled, the phagocytes circulating thru the skin are alternately subjected to the excessive interior warmth and the excessive exterior cold which render them less efficient functionally. He found that immunity is a purely relative term, and that even in the otherwise immune, susceptibility may be superinduced by experimental means. For instance, fowls are immune to anthrax, but are rendered susceptible if kept for some time standing with the feet well immersed in cold

water. It has also been found that cold and wet are much less likely to produce disease during muscular exercise, but fatigue must be avoided. Exercise increases the heat of the body, increases heart action and accelerates the movement of the blood thru the skin, raising the internal temperature of the body; therefore, during exercise the temperature of the leucocytes never falls much below normal and their function is not reduced.

There is some ground for belief in the old dictum that "a fever patient never catches cold" which is, perhaps, explainable on the basis that there is always a hyperleucocytosis when the temperature is high, old leucocytes being constantly destroyed and new virile leucocytes being born out of the bone marrow constantly. In any case we know that in the presence of any serious disease where the number of leucocytes is not increased or where they fall below normal, the prognosis is not good unless we succeed in stimulating the growth of new white blood cells. This is such a simple and important factor in body resistance that its value should never be overlooked. The recent influenza epidemic bore witness to the fact that there was both a relative and actual decrease in leucocytes, especially in cases which succumbed quickly to the invading army of virulent micro-organisms.

When thinking of the patient's resistance to disease one does not always remember that the micro-organisms also have a well-developed line of defense against both the body fluids and any agent which we may introduce from without the body. Bacteria become more or less tolerant to antiseptic agents, and even *in vitro* it is not always easy to kill certain types such as the spore-forming group. The encapsulated bacteria are also very hard to kill because a lipoid

envelope protects them against the action of body fluids. Moreover, micro-organisms show almost human intelligence in ensconcing themselves in the cell recesses of the body where they may remain strongly entrenched and maintain their virulence over a period of months or years. It is for this reason that relapses are so commonly met with in acute disease. Upon the same grounds, too, one can explain the so-called "carriers" of active organisms which have apparently become habituated to the individual in such a way that he may remain in an apparently good state of health while harboring them in the various organs and tissues of the body thruout a period of years.

Further, there is a general alkaline or acid reaction of the body fluids which encourages or makes possible the tenure of certain bacteria. Recent work on the intestinal flora has shown that in chronic infection of the lower bowel with well-known symptoms of putrefaction, formation of gas, numerous fluid stools, etc., the dejecta are acid in association with certain pathogenic bacteria, and alkaline in association with certain other bacterial groups, so that rational treatment of the lower bowel depends upon a knowledge of the reaction to litmus. Therefore, where bacteria are growing readily in an acid medium the bowel is flushed frequently with an alkaline wash; and, conversely, where bacteria are propagating in the presence of an alkaline medium, an attempt is made to acidulate the medium so that the organisms will find it more difficult to live, thrive and grow.

Another factor which influences the resistance of the patient is the "acidosis" element. Normally the blood is alkaline, and when this alkalinity is reduced the ac-

tion of antibodies is lessened, giving to micro-organisms and their toxins the greatest opportunity for unrestricted propagation and devastation of tissue. Alexins and opsonins work best in alkaline media; and, therefore, the therapist has an opportunity to favor this condition by medication and by diet. Ingestion of acid fruits which are converted into alkaline citrates, tartrates, malates and the like when they reach the blood are certainly of value in combating acidosis. This may help to explain the great faith of the laity in the use of lemons during acute illnesses, and in the light of recent studies this faith may have a foundation in fact.

The lower respiratory tract is sometimes infected from the upper airways. For instance, pus from a sinus infection drops down into the hypo-pharynx, sets up a laryngitis and tracheitis, ultimately a bronchitis which for one reason or another never gets entirely well. Adenoid tissue in the vault of the pharynx probably exerts a like influence, since it is almost constantly a culture medium for bacteria. And thus it comes about after some acute, severe illness such as influenza or scarlet fever that the patient seemingly recovers, but in some part of his body there lurks the micro-organisms of the original infection, now apparently harmless to the host who has established his immunity and a tolerance for the presence of such germs, but decidedly pathogenic and harmful to the innocent, unsuspecting person who happens to make a "contact" with the carrier.

This question of "carriers" is especially important in considering chronic infections of the airways. As may be inferred from the above, a carrier is one who harbors pathogenic micro-organisms in his body without exhibiting any personal manifesta-

tions of the disease. Diphtheria bacilli, streptococci, diplococci, meningococci and many other organisms may live in the airways without giving any definite signs or symptoms of their presence. It is well known that physicians and nurses go about their work in the hospital wards in an apparently good state of health carrying various dangerous bacteria in the mouth and throat. Such are termed *temporary carriers*; for once they are outside of the locus of infection for a few days the bacteria can no longer be found by culture. An *acute carrier* is one who has had some disease and who harbors the micro-organisms throughout convalescence and for a few days thereafter. A *chronic carrier* is one who has recovered from an infection, but carries the germ for months or years thereafter.

The study of carriers has shed new light upon the spread of communicable diseases, and emphasizes the necessity of taking at least two negative cultures from all cases before discharging from quarantine. The difficulty of sterilizing the respiratory tract is obvious, but it must be done if public health is to be safeguarded, and the newer teaching of medicine must demand and see that it is done. Says Rosenau, "The cure of carriers is one of the pressing problems of preventive medicine, but one hopeful feature is that their number may be diminished by isolating the cases. Thus, the number of typhoid carriers falls off sharply as a result of any successful measure directed against the clinical case." In the first weeks that America was at war with Germany this carrier question came up very prominently because of the development of cerebro-spinal fever. Government pathologists visited many of the hospitals in our cities and took cultures from the naso-pharynx and throats of patients

in the waiting rooms in order to find out what proportion of the civil population is carrying infectious diseases and thus spreading them far and wide. I have not seen the report on this work, but Great Britain has rendered hers and the investigators concluded that every case of cerebro-spinal fever is an instance of some carrier developing the disease, the same type of meningococcus being found in the nasopharynx and spinal fluid.

For purposes of convenience we may classify the chronic infections of the larynx, trachea and bronchi into tubercular and non-tubercular. So much has been written about the tubercular variety that it would be superfluous and likewise impossible to go into that in a paper of this length, but it would seem that the intensive study of tuberculous lesions of the lungs has overshadowed the non-tubercular to such an extent that this latter very large and very important group has been overlooked. After all that has been said, written and done in the diagnosis, pathology, symptomatology and prognosis of pulmonary tuberculosis we are in about the same relative position regarding treatment as we were fifty years ago. There is as yet no specific general treatment, and the hygienic management such as regulation of diet, intake and output, exercise, fresh air, etc., has been worn quite threadbare. As for local treatment this is not even attempted except when the tuberculous process attacks the epiglottis or larynx, seemingly because it is believed that the tubercle bacillus cannot be killed in the lung in sufficient numbers to make any difference in the course of the disease; for in many instances the constitutional symptoms outweigh all others. Is it too much to believe or hope for that in the not distant future someone

is going to make the attempt to treat the lungs directly by organizing against the tubercle bacillus a campaign so destructive as to make its persistent habitat in the lungs untenable? Such treatment would make use of all the hygienic and dietetic methods now recognized as helpful, and combine them with the application of methods worked out from a study of the physiologic chemistry of the body metabolism in the presence of tubercular infection. At the present time it is difficult to get an intelligent laboratory report on the sputum sent to most Health Board Laboratories. It is deemed sufficient to report on the presence or absence of tubercle bacilli, but the specimen may be swarming with long or short chain streptococci, streptococcus mucosus, streptococcus viridans, diplococcus pneumoniae, and all possible varieties of staphylococci. The absence and continued absence of tubercle bacilli from repeated specimens, and the constant presence of other micro-organisms speak favorably for a lung infection of non-tuberculous origin. Many patients suffer for years from the latter condition, and in some cases are finally convicted of having tuberculosis anyway even tho no tubercle bacilli have ever been found. One such case has been under my observation for almost two years. For the past twenty years he has been examined by some of the best physical diagnosticians in this country who report a wide difference of opinion. During this period he has always coughed up considerable pus, occasionally some blood, but at no time has the tubercle bacillus been found. The sputum has, however, always shown long chain streptococci, staphylococci, diplococci, etc. At one time he spent six months in a tuberculosis sanitarium to which he was ordered by a lung

specialist with a diagnosis of pulmonary tuberculosis, but after repeated attempts to prove the diagnosis correct, the sanitarium authorities sent him away with the opinion that no pulmonary tuberculosis is present. It does not seem reasonable to suppose that in the countless sputum specimens he has submitted during the twenty year period, the tubercle bacillus would not have been found at some time had it really existed in the lung. This is undoubtedly a chronic infection of the lungs caused by the organisms above enumerated. The outlook for cure is remote at this late date because it is fairly impossible to remove the diseased lung tissue and so destroy the nidus of infection. Nevertheless, he has improved greatly under treatment by vaccines and antiseptic medication dropped directly into the trachea. One should add that an X-ray picture of the chest disclosed no foreign body, but merely the usual mottled appearance of the lungs and enlarged peribronchial lymph nodes.

The non-tubercular conditions of the lungs which exhibit the expectoration of considerable quantities of foul pus are lung abscess, empyema of the pleurae with rupture into a lung, and foreign body in a lung. Since the bronchoscope has come into existence such cases are being investigated more and more by the bronchoscopist, and some surprises have burst upon the eyes of the internist especially in the matter of unsuspected foreign bodies. Dr. Sidney Yankauer of New York City has reported several such cases which he diagnosed both in hospital and private practice, and he has been a pioneer in washing out the lung after removal of the foreign body.

A third group of diseases characterized by distressing chronic cough is the anaphylactic or "sensitized" group. This is an ex-

ceedingly difficult field for investigation, but some surprising things are being discovered which will bring comfort to a large number of sufferers from pollinosis, hay fever, hay asthma, and various protein substances. There are persons who cannot ride behind a horse without being seized with a fit of coughing, sneezing and lachrymation. Others suffer from the peculiar substance given off from the hair of cats, mice, dogs and rabbits. Chicken feathers are anathema to certain patients, while others are much affected by sheep's wool or goose feathers. In determining which of these is active for a given patient it is sometimes necessary to go thru a large number of skin tests especially for the food proteins—strawberries, grapefruit, pineapple, lobster, veal, etc. Naturally this must be done by a laboratory expert who can give the necessary time and attention to this problem of diagnosis.

All that has gone before is a necessary and important background for the *treatment of chronic cough*.

It is well understood, I think, that cough is only a symptom, that it has no real significance apart from the underlying cause; and therefore, the successful treatment of chronic cough resolves itself into the question of diagnosis. Ruling out the purely mechanical causes under group A and the causes associated with anaphylactic or sensitization phenomena under group C, we have to deal chiefly with the activities of pus-forming micro-organisms. First in importance is to determine exactly if possible the kinds of bacteria present, their number and virulence, the culture media on which they grow best, their behavior to various stains and other data which the laboratory expert must be relied upon to furnish us with. It is a standing rule with

my laboratory man to make an autogenous vaccine from every pus specimen unless otherwise ordered. How much can we expect from vaccines in these chronic infections? This is still a disputed point and many good clinicians put forth excellent arguments on both sides of the question. Regarding the specific action of vaccines there is some doubt, for surprising results have at times been obtained by using ordinary proteid substances which have nothing to do with bacteria. Possibly it is the bacterial proteins which bring about the helpful effects. We are still quite in the dark about this whole vaccine question, and it is, therefore, not surprising that some men have failed utterly to see anything good in it, since the matter is so empirical that no one has any rule to guide him in the dosage, frequency of administration, etc., save his intuition. It falls out that in some hands vaccines are not only useless but even harmful. One very important item is that the vaccine be carefully made and counted. In killing the organisms I prefer that no heat be used as it seems to make the vaccine inert or brings about some lipoid change which may be harmful. It is much better to use some chemical antiseptic such as cresol or phenol in proper dilution. The vaccine is then counted as 500 million to one c. c., and the first sensitizing dose is put at about 50 million. This is doubled every third day if the reaction is entirely worn off, until we are giving two or even three c. c. We must not pile up our effects too rapidly or the patient will show symptoms of anaphylactic shock and his resistance will then be lowered instead of increased.

Two desirable effects accrue from the use of vaccines: *First*, they make the patient sleepy, thus securing good solid rest at

night; *second*, they make the patient hungry thus helping to build up the body resistance.

We must do everything possible to build the patient up, for in these chronic infections he is always badly in need of an entire change of regimen. One must study his daily habits and needs with respect to fresh air, exercise, food, out-of-door sports, change of climate, etc., and must prescribe these in writing after a proper course has been determined upon.

The possible presence of acidosis must be investigated. In that event we must administer sodium bicarbonate, sodium citrate and other alkalis in large doses plus the acid fruits. Alkaline waters must be imbibed exclusively, and frequent examinations of the urine must be made to determine the degree of acidity, and the presence or absence of acetone and diacetic acid.

Having fortified the patient in a general way we must get the mucous membranes clean, tone up these membranes and finally apply our local antiseptic in such a way as to make the habitat of bacteria no longer tenable. We must blast them out of their trenches but keep the trenches intact, a problem quite as difficult as any which confronted the Allied engineers.

To cleanse the surface one may use alkaline washes thru the bronchoscope. Potassium iodide and expectorant drugs may be given to stimulate the mucous glands so that at least some of the bacteria may be thrown out by this mechanical action. It must be remembered that we have to do not only with surface but subsurface infection, the bacteria being entrenched deep down in the submucosa in many instances. Consequently, most surface applications will kill only those bacteria which happen to be exposed.

General tonics may be employed with good effect. Of these, strychnine is especially useful since it acts almost specifically upon relaxed mucous membranes.

Finally, we must employ antiseptic agents with skill and sound judgment. Salts of silver—argyrol, protargol, silvol, solargentum are all helpful if applied directly to the diseased area. They must be dropped directly into the trachea once or twice daily and coaxed into the affected bronchus thru gravity, the patient lying down on the affected side immediately after the instillation. The oily antiseptics are at times very helpful: Menthol in oil, thymol, oil of cloves, etc., in from five to twenty-five per cent. solution, about one c. c. being introduced at each sitting.

Recently we have had given to us thru the work of Carrel and his associates the so-called dichloramine-T in chlorcosane oil. This is one of the most active antiseptics for chronic infections and the only precautions one needs to follow are that the liquid be fresh, neither acid nor alkaline, uncontaminated by foreign matter, and that it reach the free exposed surface where bacteria are assumed to be. One should then control the progress of the case by making frequent bacteriologic examinations of the sputum to note what changes have taken place in the numbers, virulence, etc., of the bacteria.

One will fail in the treatment of these cases if he does not explain in the very beginning what he proposes to do, that the time of treatment will extend over many weeks, possibly several months, that one or two treatments must be given daily, and that only thru the most strenuous and painstaking work can one hope to eradicate the bacteria and heal the lung. Treatment of such cases "by the visit" is hopeless.

We must take the case as a problem to be solved and must demand that the patient be ready to submit himself to all the various laboratory, X-ray and other tests and procedures cheerfully and immediately whenever requested. Naturally a physician with a large practice of varying cases cannot give either the time or attention that these patients must have. He must aim to specialize in this type of case so that he *can* give his entire time and attention to them just as he would to a serious surgical condition. He must, in consequence, be paid a fair inclusive fee. He must not try to cut down on the number of visits, the necessary examinations and the like.

If the routine herein outlined is followed in detail it will bring no end of satisfaction to the patient, the physician and all others concerned.

THE SUCCESSFUL TREATMENT OF ASTHMA.

BY

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The topic for discussion concerns a subject, the conception of which has remained unaltered and unchallenged for the many centuries past. Asthma, we are taught, is a condition of spasm of the bronchial tubes which is brought about by various causes. If I differ from such teachings and challenge their correctness, it is not because I lack the due reverence, which everyone of us owes to our forefathers in medicine, but because my accidental discovery of the cause of asthma has forced me to forsake the ancient conception and to substitute for it a theory, the correctness of which has been substantiated by an experience in over four hundred cases.

The watchword of medicine must be progress and the test of the correctness of any theory must be the result obtained when following the dictates of such theory. True science demands that we examine and, with unbiased mind, analyze every new theory which promises improvement on our old ideas. Just because the newly propounded teaching markedly differs from our accepted views is no reason why one should lay it aside contemptuously. Quite the contrary. The theory which I here propose to elaborate on, not only is in marked contrast with the present ideas, but the results obtained, because of this theory, border on the miraculous. May I ask the reader to suspend his natural aversion to and prejudice against innovations until he has finished reading this paper and that he may pay close attention to my remarks and my reasoning.

My object is, *first*, to prove that the present understanding, that asthma is produced by a spasm of the bronchial tubes, is absolutely erroneous; and, *secondly*, it is my desire to establish the correctness of my conception, that asthma is the off-spring of a pathologic gastrointestinal condition. To prove either and both my contentions I shall have to call to my assistance the well-settled and well-proven laws, as are embodied in physical examinations. I must have recourse to this just because the direct proof is unavailable and, so far, impossible. I shall attempt to prove that the old teaching is based upon nothing more fundamental than speculative imagination, as no one as yet has been able to directly observe the presence of the assumed spasm. To do this it would be necessary to open the lungs and look at the bronchial tubes during their supposed spasm. For excellent reasons this has not yet happened. No asthmatic has as yet permitted his chest to be opened in

order that we may learn of the actual condition of the bronchial tubes when he wrangles for air. Nor has anyone died during an attack of asthma and had an autopsy performed immediately after. Nor could an autopsy have availed us any, as a spasm is the expression of a vital function and death suspends vital functions. For like reason the opening of the chest under an anesthetic would fail to show a spasm; complete anaesthesia would overcome a spasm. The X-ray, to my knowledge, has not yet been attempted, and during the spasm the patient is not in a quiet condition, but moving violently and, therefore, the employment of the X-ray is precluded. In order to prove the fallacy of the present teaching by indirect proof, I shall rely upon the clinical evidence as manifested by the sufferer's behavior during an asthmatic attack. Whether the patient is seized while in bed or out of bed, he always assumes during the attack a position which is most favorable to expiration. We also observe that it is not the inspiration which is labored, but the expiration. These are facts which are not and cannot be disputed. The picture of the chest is that of fulness in all of its diameters. These facts are not only not in consonance with the theory of an existing spasm of the bronchial tubes, but are diametrically opposed to such an assumption. What does a spasm mean? A spasm means a muscular contraction which is much more violent and forceful than is a normal contraction, and also is of longer duration than is a normal muscular contraction. In a contraction of the muscular structure of a tubular organ, the lumen of such tubular organ is lessened. This lessening of the lumen is in direct proportion to the force of the contraction; the more forceful the muscular contraction, the lesser is

the lumen. A spastic contraction is synonymous with an amplified contraction and an amplified circular contraction of a tube means that the lumen becomes much less than it would become on normal contraction. Accordingly, the physiologic effect of a spastic contraction of the bronchial tubes would be a circular contraction, therefore a constriction of the bronchioles. Since the physiologic function of the bronchial tubes is to afford a passage for the entrance of air into the lungs, a constriction of such tubes must have as a consequence a lessened quantity of air passing thru a lessened lumen. The smaller the lumen thru which the air can pass, the less is the quantity of air which can reach beyond the constriction. If a quantity of air, less than normal, reaches the air vesicles, the air vesicles will respond in distention to a lesser degree, the air cells will distend less and the aggregate distention of all the air vesicles will naturally bear upon the entire distention of the lungs as a whole. In fewer words, a constriction of the bronchioles must produce a diminished expansion of the lungs. In the condition of hyperdistention of the thoracic cavity, due to whatever cause, we see on inspection not only a larger chest, but especially a distention, a bulging out of the intercostal spaces. Conversely, a retraction of the organs of the chest becomes manifest by the retracted condition of the intercostal spaces. The intercostal spaces are the index of the state of the relative distention of the thoracic organs. If the intercostal spaces are filled out, distended, bulge out, then, in the absence of any other condition within the chest wall, such bulging out is due to distention of the lungs. But if, on the other hand, there is a check to the quantity of air which can enter the air cells, the lungs cannot distend to their normal

capacity and, whatever else may happen, the bulging out of the intercostal spaces cannot happen. Thus, the element of the distention of the lungs being dependent upon the quantity of air which is supplied to the air cells, it is immaterial at what particular point the air supply is shut off or interfered with, in order to produce a retraction of the intercostal spaces. All that is necessary is that the air supply be shut off or diminished before it can reach the alveoli. Certain pathologic conditions which are open to our inspection do cause a constriction of the air passage right at the beginning of the respiratory system. I refer to spasms of the larynx and trachea, to swellings of these structures, due to inflammatory or edematous changes and to growths. Under any of these conditions a less quantity of air enters the lungs. What is the clinical phenomenon we observe herein? The patient struggles in inspiration, the inspiration is very much prolonged and labored, the supra- and infra-clavicular and the intercostal spaces are not only not bulging out, but are retracted. In other words, the clinical picture we here find in the actual demonstrable obstruction to the passage of air fully conforms to the reasoning followed out above and with which we have all been familiar since our student days. But the clinical picture of the chest during an asthmatic attack is in marked contrast to the one just portrayed. The asthmatic has no difficulty in inspiration; it is the expiration which embarrasses so much. During the asthmatic attack the supra- and infra-clavicular and the intercostal spaces are distended and bulge out. How could we be guilty of assuming two diametrically opposite manifestations to be due to the self-same cause! If obstruction to the entrance of air into the lungs produces retraction of the inter-

costal spaces, how can we allege that bulging out of such spaces is also due to obstruction? In the demonstrable obstructions of the larynx and trachea there is difficulty in the inspiration; in asthma the difficulty is in the expiration. Also auscultation confirms the proper interpretations of the inspection. The inspiration is free and relatively much shorter than the expiration, and the asthmatic râles are heard in expiration. It is impossible to affirm, without doing violence to one's logic, that two opposingly contrasting phenomena are the result of the same identical cause. If, as we know, obstructions to the larynx and trachea cause difficulty in inspiration and retraction of the chest, then free inspiration with difficulty in expiration in connection with bulging out of the chest cannot possibly be ascribed to obstructed inspiration, to the presence of a spasm. Two different phenomena must have two different causes. Asthma has been known for centuries and the assumption of a bronchial spasm as its cause apparently appeared plausible enough to the first writer, whose teachings were copied for centuries. Such teaching has thus acquired a sacred solemnity which no one dared dispute or challenge. There is no spasm of the bronchial tubes in asthma.

The proper understanding of the nature and cause of the asthmatic spasm requires the proper understanding of the nature, cause and mechanism of coughing. Here again we meet with time-worn and erroneous assumptions from which we cannot easily extricate ourselves. Unfortunately, ordinarily the layman and the physician understand by cough the synonym of "catching a cold." This "cold" is rather a very unscientific and very highly misleading expression, but for the sake of convenience and brevity I will retain this expression,

giving it the same meaning as the laity. A person coughs and goes to the physician with the self-made diagnosis of having a "cold," and the physician not only adopts this diagnosis, but also prescribes for it. Why, then, wonder at the many failures in the attempt to cure such "colds"? It is true that cough is one of the symptoms in bronchitis and pneumonia. Yet it is not true that all coughs are due to these causes. From my own experience I feel justified to assert that only a very small minority of "coughs" are caused by the so-called colds. On recollection we know of many cases where a slight irritation of the throat by a very fine hair, or morsel of food, or some powder was sufficient to cause a most violent fit of coughing, which persisted until the irritant was dislodged. Spraying and swabbing the throat always excite coughing. Again, we are not unfamiliar with the so-called stomach cough, something we know does exist, altho its exact nature is still a matter of speculation with most of the profession. The several instances just enumerated give us a variety of elements distinct from each other, yet calling forth one and the same effect, namely, the coughing. Strict adherence to scientific reasoning will not permit us to hold one and the same result as the effect of various and distinct causes. If, nevertheless, the same result is obtained from apparently different agencies, then the implication must be that all these various and distinct agencies have somewhere one element or one point which is common to them all. From the illustrations just cited as producing cough, an element or point which might be common to them all does not appeal as a plausible assumption. But, since to produce cough, we must have not only the irritant, but also the necessary anatomical structure upon

which the irritant shall act, and since the irritants alluded to seem not to have a common element might we, perhaps, find that the enumerated irritants all converge their irritating action upon one and the same anatomical structure? If the latter proposition can be established, then the solution of the nature of the cough is made. That a hair which lodged on the posterior pharyngeal wall and that swabbing of the posterior pharyngeal wall do excite coughing is a matter of common knowledge. If we pass thru an atmosphere which is charged with noxious powder particles and cough as a consequence, we would not be justified in categorically denying the possible lodgment of some powder particles upon the pharyngeal wall. The irritating particles could have gotten on to the pharynx either thru the nose or the open mouth. The first two illustrations as of a positive fact and the latter illustration as a possible fact—certainly not a deniable fact—are sufficient to point out the pharynx as being at least one structure which, when irritated, will excite coughing. Vomiting is quite often succeeded by a spell of coughing. We might, perhaps, in this instance call the coughing an expression of a reflex action. However, we could not deny that the gastric contents, in order to be vomited up, had to pass the pharynx. If the gastric contents were irritating enough for the stomach to be ejected by it, were they less irritating when they reached the pharynx? Irritants proceeding from the stomach, especially when they are of a gaseous nature, can and do easily reach the pharynx and if they irritate the stomach they also irritate the pharynx, and hence the coughing. The cough is, therefore, not due to a reflex action from the stomach but to the direct irritation of the pharynx by irritants of the stomach having reached the pharynx. But

also irritants located or generated in the intestines can reach the pharynx if the pylorus permit the passage. In other words, if the pylorus is insufficient, if it is relaxed, if it does not close, no obstruction is offered to the intestinal irritants on their way up from the intestines thru the stomach and esophagus upon the pharynx. Whether this is the genealogy of all of the so-called stomach coughs is immaterial. It certainly may be the genealogy of some stomach coughs. Let us now proceed in our attempt to explain, upon the same basis, the cough of bronchitis and pneumonia. I will adhere to my principle of leaving out of question the nervous system and reflex actions. Can we assume a direct irritation of the pharynx also in these pathologic conditions? Aside from the fact that we find mostly the pharynx also affected in bronchitis and pneumonia we know that mucus is being decomposed in the bronchial tubes and lungs and that there are present here chemical irritants which are forced out thru the mouth. Again we see the pharyngeal irritation not as a possibility, but as a fact. Reasoning from these premises, would it not be advantageous to tracheotomize all patients in whom we find abscesses or pus-filled cavities in the lungs so as to prevent the exhausting cough and the necessary irritation of the larynx with its fatal consequences? Either upon inquiry, or volunteered by the patient, we get the history that the patient feels a sense of choking in the region of the larynx before he starts coughing. To assume the presence of chemical changes of the greenish or yellowish or rusty mucus, which cause acrid, irritating gases to ascend previous to the throwing up of the mucus, need not tax or overburden our powers of imagination. If a hair or the swabbing of the pharynx may cause coughing, why could not

the chemical irritants which were produced from the chemical changes of the bronchial or pneumonic mucus be responsible for a like effect? So far there seems to be nothing in the way to hold out the pharynx as perhaps the chief, if not the only, structure which must be irritated in order to evoke coughing. In the discussion of asthma we will find it most essential to recognize the pharynx as the anatomic structure whose irritation is responsible for the severe spasms of coughing.

Having to the best of my ability attempted to explain the cause of the cough the question now is, what is the mechanism of the cough? This depends upon two factors: respiration and muscular contraction. A deep inspiration is taken and the ordinarily following expiratory movement is voluntarily modified by the action of all the expiratory and the pharyngoglossal muscles. The former muscles attempt expiration and the latter obstruct and check it. The greater the obstruction of the pharyngoglossal muscles the greater the force and violence of the expiratory muscles. When both sets of muscles act simultaneously, the air held between these sets of muscles is put under great tension and acts solidly in one body as a piston. This is the pneumatic piston. Under the force of the expiratory muscles this pneumatic piston not only drives any matter which can be dislodged before it, but also excites peristaltic action in such organs as are capable of it, mechanically stimulates glandular secretion and milks the glands. The expiratory muscles are sufficiently known and understood by all the physicians. I wish to dwell somewhat on the action of the pharyngoglossal muscles, which are most concerned in the act of coughing. These are the inferior and the middle constrictors of

the pharynx and of the glossal muscles it is especially the geniohyoglossus. The inferior constrictor is attached to the sides of the thyroid and cricoid cartilages and the middle constrictor is attached to the hyoid bone and stylo-hyoid ligament. The geniohyoglossus is attached to the jaw and to the hyoid bone, and the hyoid bone is united by ligaments with the thyroid cartilage. The fibres of these muscles are so arranged that when they act all together the tongue is drawn backward and downward, the pharynx is drawn forward and downward and the larynx is drawn upward and backward. The combined action of all these muscles closes up the entrance into the esophagus and to the larynx. Under the influence of an irritation the pharyngoglossal muscles contract and the escape of air from the larynx and esophagus is prevented. Preceding the action of these muscles the patient takes a deep breath and the inspired air is prevented from escaping in the manner just cited. Now the expiratory muscles begin their action. A series of convulsive expiratory contractions follow every inspiration, the expiration is broken up into a series of convulsive contractions of the expiratory muscles which act on the pneumatic piston previously mentioned. If the offending material is of a mechanical nature and not firmly imbedded, the concussions of the pneumatic piston and, in the case of the esophagus, also aided by peristalsis, will soon eject the offending matter. But if the irritant is of a chemical nature the coughing spasms will continue until the irritant is diluted or neutralized by the secretions and is then expelled. Another illustration of the action of the pneumatic piston may be found in the normal act of "blowing the nose." A deep breath is taken, the nostrils are oc-

cluded with our fingers and then we "blow" the offending matter out. When the irritant which excites the coughing is of a mechanical physical nature the violent cough contractions will soon expel the offensive matter. Likewise will the responsive coughing soon cease when the irritant is a chemical, introduced from without the body. But, when the chemical irritant proceeds from within the body and is constantly being generated, the coughing will persist so long, until no more irritant is generated. This may continue for hours. But with the persistence of the cough other corollary effects follow. Because of the continuous and violent contractions of all the muscles concerned, not only do these themselves weaken, but they produce soreness and pain of the bones there, where they are attached. With the persistence of the chemical irritation and therefore, with the persistence of the cough that is, with the persistence of the expulsive efforts, the contractile force of the muscles gradually weakens. The result is that as the muscles weaken, yet the irritation persists, the efforts of the sufferer to expel the irritant are much more augmented with the consequent greater weakness and exhaustion of the patient. Given on one hand the unimpeded full inspiration and, therefore, the full distention of the air vesicles of the lungs together with the occlusion of the esophagus and larynx and, on the other hand, the hammering contractions of all the expiratory muscles acting upon the fully distended lungs, the result must be the insidious, gradual attenuation of the fine walls of the distended air vesicles. The necessary result can easily be foreseen. The distended and attenuated air cells sooner or later must lose the elastic contractile power of their walls. This condition is responsible for the development of emphysema, which is such

a frequent concomitant of asthma.

After the foregoing remarks I am ready for the discussion of asthma itself. The reader has already gathered from the preceding remarks that I deny, and most emphatically so, the present conception of the nature of asthma. I have attempted to argue and to convince the reader that the present understanding of asthma is absolutely barren of any underlying facts and that it is merely an inheritance of groundless and unproven speculation of centuries past. In our due reverence for our past teachers and in the absence of any different ideas, the old and ingrained precepts went by unchallenged. I have attempted to reason with the reader and to convince him of the fallacy of the present dominant views. I shall now endeavor to spread before the profession my own reasoning as to the cause of asthma and as confirmed by upward of 400 cases.

My association with the treatment of asthma came to me not because of any infatuation with the subject, the why and wherefore of which I had set out to investigate. I never intended to do any original research work in that mysterious malady. My interest in asthma came to me unexpectedly and the cure of it as a mere discovery. Not until I had cured the fourth consecutive case have I begun to search for the connection between asthma and diseases of digestion, my specialty. It happened in the following manner: Some 16 years ago a woman came to consult me about her stomach trouble. In giving me her history she also remarked that she had been suffering for many years from asthma, which fact was evident enough without her mentioning it. "Doctor," she said to me, "if you can only give me a little relief from my stomach trouble I shall be very glad.

Don't bother about my asthma. Doctor J. is treating me for it and I know that there is no cure for asthma." Indeed, I felt very happy that the patient did relieve me of possibly having to take care of her asthma. The patient suffered from *Insufficientia Pylori* and required daily treatments. After the tenth or twelfth treatment the patient told me that her asthmatic attacks were not so bad as they used to be. Glad some as the news was I paid no attention to it and continued my treatment of her stomach trouble. Several weeks after the patient surprised me by telling me that she had no more asthma. Being interested in her welfare I was certainly very pleased to hear it, but what did I have to do with it? An accident, I thought, and dismissed the incident from my mind. The second asthma case came some time after. Here again the patient suffered from insufficiency of the pylorus and the second asthma cure was accomplished in the course of a few weeks. Another accident I thought. A third asthma patient came in due time in which the gastric diagnosis was insufficiency of the pylorus, and after some few weeks of treatment the third asthma miracle was worked. This rather puzzled me. I now had three consecutive cases of asthma and all three got well. However, I did not think of it in any other light, but that I merely had good luck and made up my mind to take advantage of it the next time. So that when the next asthma case came I very cautiously held out a slight hope to the patient of possibly being able to cure his asthma. This promise involved no risk for me as the patients came to me only for the cure of their stomach troubles. For the fourth time there was the association of insufficiency of the pylorus with asthma, and the cure of both. I now began seriously

to think over the matter. The undeniable facts were: *First*, that all four patients had insufficiency of the pylorus. *Second*, that all four patients had suffered from asthma, and *third*, that all four patients were cured of their asthma. Furthermore, I was sure of one thing; that Deity had not selected me to work miracles thru. Reflecting over these facts I came to the conclusion that there must be a relation between the asthma and the insufficiency of the pylorus. What was it?

Let me now give a brief summary of *Insufficientia Pylori*, which I have described for the first time in the *Phila. Med. Jour.* (May 24, 1902). The diagnosis of insufficiency of the pylorus is to be made when one hour after the test breakfast either no contents at all are aspirated from the stomach, or very little and that little is usually imbedded in mucus. Altho I have published about a dozen articles on the subject I would advise those who are interested in the subject to read the first paper here mentioned. (In parenthesis I wish to make these following remarks: If the examining physician find no contents one hour after the test breakfast, he must make sure that the stomach tube entered the stomach and not possibly an esophageal diverticulum, which was empty of contents.) According to the degree of the insufficiency the ingested food leaves the stomach sooner or later, and either not digested at all by the stomach or a good deal of the ingesta pass into the duodenum undigested. Medicine assumes the existence of "vicarious action;" but if this hypothesis hold good anywhere in the body it finds no application in gastro-enterology. A cursory reflection on the mere elements of digestion is sufficient to stamp such an assumption of vicarious digestion as an impossibility. Gastric diges-

tion is acid; intestinal digestion is alkaline. The food articles are only chemical compounds and chemical compounds cannot be acted on alike by acids and by alkalies. We know that the stomach digestion is acid and we also do know that food is being digested by the acid stomach. How can we assume that the chemical elements of the food which nature intended to be digested by an acid medium, could be digested by the alkaline secretions of the intestine? The clinical proof is that it cannot. The chemical elements which nature intended to be digested by the acid stomach cannot be digested by the alkaline intestine. When, in insufficiency of the pylorus, the ingested food or part of it passes out into the intestine without first having been digested by the stomach, such parts as have not been digested undergo in the intestine fermentation or decomposition, or some other chemical processes with the production of gasses and of volatile acids. The result of this is increased intra-abdominal pressure, which is clinically evident by compelling the sufferer to loosen his or her clothing. This latter phenomenon is familiar to all of us. Just let us pause now and think over this increased intra-abdominal pressure. Is this pressure exerted only against the abdominal wall? May we not correctly assume that the pressure is not limited to the abdominal wall, but that it acts with unabated force in every direction and, therefore, also against the diaphragm? Surgeons meet with this condition and find even the liver, the heaviest of our organs, occasionally pushed into the thorax by the strong intra-abdominal pressure. The pressure thus exerted upward against the diaphragm and, therefore, against the thoracic cavity not only puts a formidable obstacle to the normal excursions of the heart and lungs which

these have to overcome, but also very much diminishes the breathing capacity of the lungs. The lungs thus shut in in the bony cage which the ribs represent and, therefore, cannot escape the forceful pressure from below, must suffer compression. Under such conditions the actions of these most vital organs, the heart and lungs, are violently interfered with. It stands to reason that the longer the thoracic organs are prevented from functioning normally, the greater will be the damage. The lungs attempt to expand and at each attempt they meet with obstruction from below. This happens eighteen times in a minute and persists not for one minute, nor for one hour, nor for one day, but for days, weeks, months and years. That such state of affairs cannot have a salutary effect upon the lungs will hardly be disputed. Herein, I thought, I had to look for the cause of what is clinically seen as asthma. After I had assured myself of the correctness of this reasoning, the relationship between asthma and the insufficiency of the pylorus became manifest. Also, I understood now, why the four patients got well, namely, with the cessation of the increased intra-abdominal pressure. With the cessation of the pressure upward against the lungs, these were permitted gradually to function normally. We thus find the explanation for the first element in the production of the asthmatic constitution. The second element is the cough and the cause of the cough. I have already alluded to the formation of acid gases in the intestines as the result of undigested gastric contents getting into the intestine and here undergoing decomposition or fermentation. These acids are irritants and act as irritants upon any surface with which they come in contact. As these acids ascend they cause irritation along their

tracks. The irritation of any mucous membrane calls forth contraction of the underlying muscularis and the contraction of this is in direct ratio to the degree and duration of the irritation. The acid gases as they rise from the gastrointestinal canal to the esophagus and beyond cause irritation all along the esophagus and of the pharynx as well. As the consequence of this the corresponding and irritated muscles of the pharynx do contract. Contraction of the glossopharyngeal muscles, cited above, close the lower part of the pharynx and with it prevent the escape of the irritating acid gases. These accumulate below the constriction and cause here distention. This the patient feels and describes as "choking," or as a "lump," or as "something sticking there." There is now an irritant which continues to be generated in the intestines for perhaps several hours, during all of which time the patient tries vainly to rid himself of by coughing. As mentioned before, the continued coughing gradually weakens and dilates the alveoli. Thus weakened the lung tissue becomes easily susceptible to various attacks.

Etiology.—I have already sufficiently dwelt on what I consider the cause of asthma. However, I wish to discuss very briefly what the books allege to be the cause of asthma. Let me speak first of heredity. It is true that we find asthma in several succeeding generations and in several members of the same family. Does that prove heredity? By heredity I mean something which we cannot possibly escape, which has been implanted upon us during uterine life. Perhaps a little anecdote will not be out of place. Very often after our daily clinics at the Augusta Hospital, Berlin, Professor Kutner, the late assistant to Ewald, would assemble all of us when we would discuss

whatever appeared worth while discussing of the clinical material. So it happened that once I mentioned the fact that I have been treating the father, the mother and several children for achylia gastrica, a disease, the existence of which I now deny. Here was something to talk about. Doctor Kutner then turned to the first assistant and asked his opinion. The gentleman addressed thought it was rather strange and suggested that it would tend to point to heredity. The other gentlemen also were of this opinion. Now Dr. Kutner turned to me and asked me what I would suggest. Whereupon I began to laugh. "Why do you laugh?" asked Dr. Kutner.

"Well," I said, "do you want to know what I think is the matter?"

"Of course, yes," was the answer of Dr. Kutner.

Whereupon I replied: "The trouble here is a bad cook. If we are to admit heredity at all, and argue that the children inherited the disease from their parents, how could the spouses inherit the disease from each other? It is true that asthma may run in the family, but not because that the one inherited it from the other, but because they were all brought up on the same faulty diet. A father and mother are presumed to love their child. If the parent believes in a certain food, not only will he eat it, but he will also insist that his child eat of it; believing that this particular food is good for him, he wants his child to also have the benefit of such food. If now, in the course of years, that particular food caused disease to the parent, how could the child escape it?"

Neither age nor sex has any influence upon asthma. My youngest patient was six months and my oldest 84 years old. Both sexes are equally affected.

There is a very widely entertained belief that asthma is due to some nasal disease. I have lately had a patient who told me that she had no less than 15 nasal operations. To be conservative, I believe to have had at least one-third of my cases in whom one or more nasal operations have been performed for the cure of asthma. Had they been cured they would never have come to me. This, however, does not argue that if a nasal operation is necessary, that it should not be done. While nasal conditions may have their influence upon asthma, they are not the cause of asthma.

The most common conception is that asthma is caused by the inhalation of some pollens. But the fact is that only a very insignificantly small number of people who suffer from asthma have ever been in the neighborhood of such plants. Furthermore, the majority of asthmatics begin to suffer in winter, at a time when there are no pollens to inhale. Animal odors are also accused as being the cause of asthma; I have not yet met any of such cases in my practice.

Many hold the climate as responsible for asthma. My patients have come from all parts of the country and from all altitudes and from all climates. I am just now treating a patient who several times was sent to the mountains by his previous physicians, and had to leave there after a few days because his asthma became very much aggravated. Others went thru a like experience when they went to the seashore on the recommendation of their attending physician. And, while climate has no bearing at all in the etiology of the asthma, atmospheric conditions do exercise an influence; some patients get worse in damp weather and others are distinctly benefitted by it.

Cardiac and renal diseases have also been

made to carry the burden of responsibility in the causation of asthma. There is no denying that there are many cases of asthma associated with either heart or kidney disease. But where is the proof that they are causally correlated? I had such combinations in my practice, but the number of these is very small. I fear that the diagnosis of cardiac asthma was based chiefly, if not altogether, on the clinical symptom of pain and distress in the region of the heart. I have seen those cases time and again when patients came to me with the diagnosis of cardiac asthma, made by the physician, when the heart was perfectly well and which had ceased to give any symptoms once the asthma was being treated. In these cases the patients will sometimes continue to evince anxiety about the condition of their heart, altho neither the asthma nor the heart causes them any trouble. The assumed heart disease, which was based on the history of pain in the cardiac region, was due to the intra-abdominal pressure forcing the diaphragm up against the heart and throwing the heart forward, upward and outward. This condition can easily be visualized by the fluoroscope and recorded by the X-ray. Under this condition the heart is pressed against the ribs which procedure is painful. There is no reason why asthma should not possibly co-exist with any other disease, be the disease an affection of the heart, or of the kidneys, or of any other organ. We are no more justified in calling, in a specific case, the asthma heart asthma, or kidney asthma, then we would be justified in calling the asthma thyroid asthma, if the thyroid happened to be affected at the same time. The co-existence of other affections besides the asthma does not permit us to associate them as interdependant on each other. In my experience there is but one asthma and

this is bronchial asthma, and the bronchial asthma has the gastrointestinal conditions, mentioned before as the etiologic factor.

The foregoing discussion applies to the etiology of the asthmatic constitution. The asthmatic attack, the asthmatic spasm may be initiated by many other agencies. It is this fact which has been misleading the profession heretofore. The asthmatic constitution is the offspring of a pathologic condition of the gastrointestinal tract. Given this underlying condition and different irritants may bring on the spell of asthma. In the one case the inhalation of pollen, in another the emanations of some animal, which is especially irritating to that individual; in another an excitement or some other psychically violent circumstances. Thus we must distinguish the asthmatic constitution from the asthmatic spell.

Symptoms.—The symptoms of the asthmatic constitution can be summarized under the heading of gastrointestinal pneumatosis. Pneumatosis not only has a set of symptoms of its own, but so far has proved the greatest stumbling block in our divine science in the matter of diagnosis. Pneumatosis means gas distention. Therefore, it means that the stomach and the intestines are distended. A distended gastrointestinal canal reacts both on itself and upon the circumlying adjacent structures. In reacting upon itself it is bound to produce an effect which must be contrary to the one which a contracted canal will produce. The two symptoms which are the result of muscular contraction and which are mainly in the minds of the patients are, appetite and peristalsis. I have repeatedly discussed the question of appetite, especially in my papers: "Organacidia gastrica, *Med. Rec.*, Sept. 6, 1902; Additional Notes on Organacidia gastrica, *Phila. Med. Jour.*, March

28, 1903, and The Nature and Cause of Appetite Hunger and Anorexia, *Amer. Med.*, Aug. 26, 1905," and have maintained that appetite is the result of muscular contraction. This has been proved by Cannon and published by him seven years later, which publication has caused other physiologists to study the same question with like result. Since appetite is something which concerns everyone, it will be worth repeating that appetite is a sensation which is the result of muscular contraction of the pyloric region, or of the duodenum, or of both. (In parenthesis I should like to ask the physiologists who do mention my name not to quote me as saying the very contrary of what I actually did say, as did Carlson.) In the absence of contraction, *i. e.* in relaxation and in distention there is no appetite. Movements of the bowels are caused by the peristaltic action of the intestinal muscularis. As peristaltic action is synonymous with contraction of the muscularis, the distention of the muscularis, which is the opposite of contraction, also has the opposite effect of peristalsis, *i. e.* no peristalsis, therefore no passage, constipation. The distention pressure against the adjacent organs and structures causes pain of greater or lesser degree and should not be interpreted as reflex pain. The pressure upward against the heart, which forces the heart upward, forward and outward, interferes with the heart's action. The patient becomes conscious of the pulsations of his heart, and as the heart has to beat against an obstruction the pulsations become distressing and painful. The dislocation of the heart necessarily impinges upon the normal excursions of the left lung and the respiration on the left side also becomes painful. The distention of the stomach is felt by the patient as bloating, fulness, or weight, and the escape of the

gas thru the mouth is responsible for the belching. The irritating gases reach the pharynx and cause constriction of the pharyngeal muscles, the gases cannot escape and accumulate behind the constriction until the muscle spasm ceases. This causes the patient to complain of choking, or of a lump in the throat. This, unfortunately, has been misinterpreted as the *globus hystericus*. The distention of the intestines is felt by the patient as fulness or weight in the abdomen. Asthma does not set in suddenly; it begins with what is usually called dyspeptic symptoms. Perhaps a good rule would be to warn every patient who chronically complains of fulness after meals accompanied by shortness of breath, pain in the left side on inspiration, palpitation and difficulty in going uphill or up a flight of stairs, of the likelihood, that asthma may be developing. There may be supraorbital and frontal headache, or the patient may recall having had them years ago. Quite a frequent symptom is pain in the back of the head and in the nape of the neck. This latter is probably due to a mechanical cause of the nature of traumatism. During the violent spasms of coughing, the muscles of that region are violently, suddenly and sharply contracted. This exerts a violent pull upon where the muscles are inserted; this, I believe, is the cause of the pain in the nape of the neck. Very often the patients complain of buzzing in the ears. The appetite varies and may be even fair between the attacks. But during the time that the patient suffers from the asthma there is no appetite. There is palpitation, the patient cannot go upstairs, or uphill, he is short winded and does not dare undertake long walks, he tires very easily and is incapable of any exertion. He gets up tired in the morning, even when when he is free from attacks. He hates

to go out alone for fear he may be seized with an attack on the way. Constipation is the rule. This is a symptom which the physician must be careful in eliciting. When the patient tells me that his bowels are good my next question is, "what do you take for them?" In the majority of cases the patient will then mention either the routine use of some drug or of such fruits which are known to produce movements. In the first years of asthma the patient may feel perfectly well between the attacks or during the non-asthmatic season. But later the patient is full of apprehension and fears to go out alone or any long distance. Coughing may be a prominent symptom; the dry, hacking, tiring cough. The patient usually dreams much, the dreams, as a rule, being quite unpleasant. As the disease wears on the patient becomes apathetic, especially so when he can get his sleep only in the sitting posture. Withall the patient need not look bad. Quite the contrary. Between the attacks the patient appears in perfect health, which deceives his family and friends.

The clinical appearance of an asthmatic attack can be summed up under the heading of air hunger and the violent, but ineffective attempt by the patient to remove an irritant, located somewhere in the chest. Quite often, the patient who has gone thru many attacks, knows by certain prodromal symptoms, that an attack is coming and such premonitory sensations are peculiar to each individual. Usually, the patient goes to bed, perhaps even, in an exuberant frame of mind; he feels quite well and happy. But, somewhere, around two or three in the morning the patient begins to have difficulty in his breathing and begins to wheeze, of which the patient has only hearsay knowledge, as he himself is

still asleep; he knows only what his family tells him. Quite suddenly he wakes up and throws himself into the characteristic asthmatic posture, which is one, most favorable to forced expiration. There is quite a similarity between this posture and the posture one assumes in defecation. In both instances one seeks expulsion, pent up air in the one and pent up fecal matter in the other. The patient sits in bed with legs flexed and thighs drawn towards the abdomen, while the trunk is inclined forward. The chin rests upon the hands and the elbows on the knees; the shoulders are raised and the head is fixed. In this position the patient labors with respiration. At intervals there is the cough, which continues in a somewhat staccato manner, beginning strong and loud and then diminishing in force with each successive concussion. The lips become cyanotic, the mouth is open and the eyes bulge out; the body is bathed in cold perspiration. Suddenly the patient jumps out of bed and runs to the open window gasping for air. The behavior of those, who cannot sleep in bed, but take their sleep sitting in a chair is somewhat different. When the asthmatic spasm seizes them, they get off the chair and brace against a piece of furniture with the entire body bent, or rather curved forward and the head thrown back. In either case the patient brings up a considerable quantity of mucus at the end of the attack and also gases are expelled. The attack may last only a short while or several hours. Some patients have only one attack in 24 hours, others have two or more. Once more let us reflect upon the manifestation of an asthmatic seizure. This happens, as a rule, sometimes past midnight, around one or two o'clock in the morning, that is, about 7 or 8 hours after the last

meal. At this time the ingested food is in the small intestine and has already undergone considerable chemical changes with the production of irritating volatile gases. But the production of such gases has not yet been completed; they are being constantly generated and forced upward by the normal contractions of the abdominal muscles, which at every contraction increases the intra-abdominal pressure. The noxious gases, reaching the pharynx cause violent and spastic contraction of its muscles and of the muscles forming the back of the tongue. The spastic contraction of these muscles seals the larynx and the esophagus and their irritation by the noxious chemicals provokes the effort to expel these by the violent act of coughing. All muscles of expiration are called into violent contractions because of which they gradually weaken. The more these muscles weaken, the more inadequate becomes the expulsive force and the greater become the efforts of the patient. These struggles exhaust the patient. As the expulsive force weakens the air cells are not only inadequately emptied, but are surcharged with CO₂ which incites still deeper inspirations, causing still greater distention of the air vesicles. Under these circumstances the cell walls weaken and lose their resiliency, which causes the dilatation of the air cells; in the course of time this dilatation becomes permanent. The enlargement of the chest and the bulging out of the intercostal spaces evidence the dilatation of the air cells. Because of the enlargement of the air cells while the bronchioles retain their normal size, the relation in size between the bronchioles and the air cells changes, that is, the bronchioles are now relatively smaller. This has its effect upon the sound; air is forced from a wider

space thru a narrower space. This gives a higher pitched sound and, as this happens with the expulsion of the air from the lungs, we therefore hear these asthmatic râles in expiration.

Diagnosis.—The diagnosis of asthma is not always an easy matter. In my earlier experience I have sent patients away and told them, they had no asthma, for which they came to consult me, because at the time of the consultation there was no evidence of asthma on auscultation. I have since learned this not to be the right practice. When a patient comes to consult about asthma, the presumption is very strong that he has asthma. If we hear no asthmatic râles at the time when the patient presents himself for examination it is because the patient happens to come during an interval. The interval between attacks may last only a few hours or it may last for days and weeks. It so happened that the patient came when his chest was free from râles and wheezing. The rule should be, that when a patient comes to consult about asthma, he should be treated for asthma, whether at the time there are asthmatic râles or not. The diagnosis rests mainly on auscultation. Indeed, one need not even see or come near the patient. I can very often make the diagnosis of asthma by hearing the patient's breathing, when the patient is yet in the waiting room. It is the change of rhythm, which so characterizes asthma. It is the fully free inspiration followed by the deep, labored and prolonged expiration. One other condition gives that rhythm and this is pneumonia. But in pneumonia the respirations are increased in number, while in asthma they are not.

The patient should be stripped and set down in an easy position for the auscultation.

We will hear that peculiar sound, known as wheezing. This is made up of dry râles of all sizes and of varying pitch. These sounds are heard in expiration. Should this position of the patient yield no auscultatory signs, then the patient is placed on his back and again examined and, should this position also prove negative then the examining chair is tilted to an angle of approximately 45 degrees, the patient's head being down and his legs up. It is remarkable how much this posture will bring out. I use this position not only for the examination of the chest, but also for the palpation of the abdomen, when it gives most excellent results. Again and again no other than the inclined position would bring out the asthmatic râles. It is also significant, that the asthmatic râles, if heard only in the inclined posture, are apt to be heard mostly, if not altogether, over the lower lobe of the right lung. This fact again seems to confirm by view, that asthma is due to pressure upward from the abdomen, as in the inclined position the abdominal viscera crowd against the diaphragm, and the heavy liver exerts its pressure against the right lower lobe of the lung.

On inspection we will find, that the chest is full, the intercostal spaces are filled out or bulging and that the supraclavicular fossae are prominent. For the inspection of the abdomen the patient is placed on his back. We now note, that there is a prominence over the region of the stomach and very often we will see here a wavy tremulation. This phenomenon is due to the transmission of the pulsations of the abdominal aorta to the gas filled bowel and stomach.

In taking the history of the case we will always find, that the patient has had digestive troubles; he may have them at the

time of the consultation, or has had them some time before and thought he was cured. In no case should the test meal examination be omitted. The test meal examination should be conducted with the object to attain practical, yet scientific facts. And for this purpose there is no better test, than the Ewald test breakfast. This consists of 35 grams of plain white bread, that is, bread made of white flour and water and of 300 c. c. of plain water. The patient should come to the physician's office fasting about 14 hours after he had had a full meal the evening before. The patient's fasting stomach is first examined by means of the stomach tube and the condition of the stomach is ascertained. After this the test breakfast is given him in the office of the physician and the patient waits in the waiting room for one hour. The patient should be perfectly quiet during this hour after which the stomach tube is again introduced. We will now find insufficiency of the stomach, that is we will find no contents or perhaps only a trace. Fanciful modifications of the test meal have been devised, but they have proved good apparently only in the hands of the one who devised them.

Prognosis.—The prognosis in uncomplicated cases is most excellent irrespective of the length of time the asthmatic condition had continued. My youngest patient was six months old and my oldest 84 years, and both got well. The baby's case would certainly dispel the belief, that asthma is of a nervous nature. *First*, because no one would care to impute nervousness to a 6 months' old nursling. And, *secondly*, I did not treat the baby, but treated the nursing mother. The child remains well and is now a little happy girl of over five years, whose grateful mother continues to send me asthmatic patients. The 84 year

old patient had been suffering from asthma since he returned from the army in 1867. Not only do the patients get well, but they begin to feel better within 36 or 48 hours after treatment has been instituted. This often proves a drawback rather than a blessing for the following reason. Emboldened by the rapid turn for the better, the patient soon begins to experiment with the diet which was forbidden him. I have very numerous instances of this occurrence. The physician must always have in mind, that the patient is very apt to eat and drink, what he should not. If after the patient had begun to feel better and kept on feeling better for the first 10 or 12 days and then begins to complain, the suspicion is, that he disobeys. Patients, who for months had been obliged to sleep in chairs can go to bed after a few days of treatment. How encouraging is this to the patient! The attacks begin to lessen in severity and frequency right from the beginning of the treatment. But the physician must tell the patient the exact truth, that the patient must expect more spasms, which will gradually disappear. Otherwise a recurrent attack, no matter how mild and of how short a duration will have a depressing effect upon the patient. The greatest patience and perseverance is required of both the patient and physician; the patient always needs encouragement. The physician must be steadfast in his positive promise of cure. The treatment requires on an average four months. The word cure must be used in asthma in the same sense as it is used in every other curable disease. Pneumonia is curable, so is pleurisy, so is measles, so is scarlet fever, etc. Will the patients, once cured of these diseases ever get them again? Of course, they may get them again. Should this knowledge stop us from treating these dis-

eases? We all wish, that when we once went thru one disease, we should never get this disease again; but it remains only a wish. So it is with asthma. If a patient gets cured of asthma he also may get it again. But there is this difference between asthma and the other curable diseases: one can never tell when he may again fall victim to pneumonia, pleurisy, etc. But the patient who gets asthma after he once was cured, has himself to blame. The asthmatic patient is told and knows what is going to provoke asthma. And if, in spite of this knowledge he nevertheless continues to abuse himself, whose fault is it? But the rule is, that after the patient had experimented a few times and got some slight attacks he complies with the few restrictions in his diet and remains well. Asthma is absolutely curable, but the patient may get asthma again, if he so chooses. The patient is taught to know his enemy. If notwithstanding this he nevertheless disobeys and again knowingly contracts the same gastric condition which originally brought on asthma, whose fault is it, that he has again to suffer? Perhaps an illustration will not be out of place. Some years ago a patient came to me from Arizona and was cured. Months after his cure I was called in haste to see him in his hotel. I found him suffering severely and asked him what happened. Between gasps for air he told me not to mind anything, but make him better. He was well again in two days and he then told me the following. He had come to New York on an important deal. "I had to go out with the boys," he said, "and eat and drink with them. I knew I was going to get asthma and I took the asthma as part of the deal. I knew that you were here and that I will get well." Now this is exactly the frame of mind the

patient wants to be put in. What a difference between the patient believing himself lost, incurable and doomed for life and the patient's taking another attack merely in the same light as contracting an attack of tonsillitis or some similar slight indisposition. Once the patient has been cured he knows what struck him, if he again gets an attack. But, as a rule the patient can and will ward off the actual attack; he knows the premonitory symptoms. He knows where he has transgressed and he will correct himself before the real attack would come. Of this I have many instances. After the patient had remained well for a certain time he will long for and eat some of the forbidden food. For a little while he will feel no distress. Encouraged by this result he eats more and will have to pay the penalty. Of all these possible happenings the patient should be forewarned.

Where complications exist the cure will be influenced by the complication. Especially distressing is a complicating emphysema, which is of frequent occurrence.

Treatment.—For the treatment of the paroxysm a long list of medicines has been tried and recommended. They accomplish nothing more than a temporary amelioration of the spasm, they do not cure. But the patient, once used to it, will abstain from the use of his specific drug with difficulty. The quickest relief is given by the hypodermic use of adrenalin. But in mentioning this I warn against its use. A patient of mine had used an ounce bottle in 24 hours. Also, I have seen one fatal result. The inhalations of the fumes of nitre paper or of stramonium leaves is not so dangerous as is adrenalin. The stramonium leaves are used either as a powder, the leaves being pulverized, or in the form of cigarettes, which are smoked

by the patient. The nitre paper is made by saturating blotting paper in a saturated solution of potassium nitrate and then drying the paper. Also chloroform inhalations are used and amyl nitrite. However, the most commonly used drug by the physician is the hypodermic injection of morphine. This may or may not relieve the spasm; as a rule it does. A patient of mine had used before I began treating her one and a half grains of morphine at a dose which she injected herself. I took the bottle of morphine away from her and she had never used any morphine after this. I never use or advise any of the drugs here mentioned except the morphine or its equivalent and this only in the treatment of an intercurring bronchitis. In the treatment of asthma itself I never use any opiate.

Remembering that asthma has as its cause the insufficiency of the pylorus our efforts must be directed to the cure of this condition. Insufficiency of the pylorus demands alkaline treatment which is intended to aid the intestinal digestion. The alkalies have to be administered at a time when the chyme is out of the stomach. This is to be ascertained by the repeated examination of the test breakfast; that is, if the patient has no contents in the stomach one hour after the test meal, the test is repeated the following day and the aspiration of the stomach is attempted one-quarter of an hour sooner. If then the stomach yields no contents, the test is again repeated the next day and the aspiration attempted again one-quarter of an hour sooner. In this way we acquaint ourselves with the precise time during which the stomach empties itself. The alkalies are to be given after the stomach had emptied itself so as not to interfere with whatever gastric digestion may yet be

left. Most often I use the bicarbonate of soda, the oxide of magnesia and the carbonate of calcium. But also the potassium carbonate and bicarbonate and the chloride of calcium may at times be found very useful, so also the chloride and carbonate of ammonium. The plain rhubarb and soda, nux vomica, strychnine, the mydriatics, cascara and the salicylate of soda are all drugs which may have to be combined with the alkalies. In many cases I add colchicum and strontium bromide to the alkalies. Which combination and what doses are to be used is entirely a matter of each individual physician's experience. For the constipation, which is one of the commonest symptoms I have used for very many years the following combination: aloin and podophyllin, of each $\frac{1}{4}$ grain, phenolphthalein from one to one and a half grain and atropin one hundred and twentieth of a grain at a dose, to be made into pills of which one pill is to be taken every night. Also potassium iodide and ammonium iodide may have to be used to loosen the mucus. Of these two I prefer the ammonium iodide. Of the saturated solution we start with a few drops well diluted in water and bring it up to the point of tolerance.

Of most importance in the treatment of asthma is the diet. Unfortunately no set rule can be laid down which would apply in every case. Each case must be studied individually. The following principle should guide us in the selection of the food. No acids, no gas containing or gas forming foods or drinks, no spices, no tea, no coffee and no yeast containing beverages. We must bear in mind that each nationality, nay, each locality has its own foods and its own food combinations and its own kind of dishes to which the inhabitants of this special locality have been used and

which they do prefer. What may be a highly prized delicacy in one locality may be looked upon with great disfavor in another. My procedure is the following: I have the patient submit to me a list of the food which he usually takes and I then go over with him each article and make such changes or erasures as seem to me indicated. In this way the patient gets a diet list to which he has been used and which he likes. Neither vegetables nor cereals are tolerated at first and should not be allowed for several weeks, until the patient's case is well in hand. The same holds good with regard to meats. One soon finds out that meat is not always meat. That is, that there is a difference in the various kinds of meat, and in the various cuts of meat. Some patients get along best on beef while others require lamb; some eat chicken without any harm and others veal. No uniform rule can be applied. The meat which is doing good to one may have violent effects on the other. Our experience is the only guide. Foods rich in starches should not be given for a long time. After five or six weeks treatment we may begin gradually with cereals, vegetables and fruits. I proceed in the following way: I allow one cereal one day and then the patient is not to have any cereals for two days after this. If there is no bad effect upon the patient within this time, then the patient is allowed to have it again. The same way I proceed with the vegetables and fruits. Only one kind is permitted at a time and then there is a rest of two days between, so that the effect may be watched. The vegetables should always be cooked and the fruit should be taken raw. However, the physician must be on his guard. The patients, eager to have fruits or vegetables, may report that the eating had no effect upon

them and in their anxiety to have them will withhold from the physician the fact that they had distress. After a few days they will begin to complain of the distress and will insist that the fruit or the vegetable, as the case may be, was not the thing that has harmed them. The physician should not mind this but stop the fruit or the vegetable which he suspects.

At the beginning of the treatment the following should not be allowed: Tea, coffee, cocoa, beer, wine, fruits, acid foods and salads, oat meal, graham bread, whole wheat bread, shredded wheat and other cereals, all fats except moderate quantities of sweet butter and olive oil, beans, peas, cabbages, radishes, onions. Salt should not be permitted. Instead of the common salt the sodium bromide may be given to be used the same as the common salt, *i. e.*, without regard to any dose.

The patient should not go to bed early. It is best that he go to bed about midnight. The reason for this is that if he goes to bed, say about 9 and then wakes about 2 or 3 in the morning, he may stay awake for a few hours, which has a very depressing influence upon the patient. The patient fails to note that he has already slept 5 or 6 hours. In most instances the patients get up in the morning with a spell of coughing. This I believe to be due to the fact that the mucus accumulates in the esophagus while the patient is in the recumbent position, instead of going downward into the stomach or being cleared by the patient, as it would naturally do when he is about. Taking one or two cups of hot water just before going to bed will greatly alleviate this distressing symptom.

Summary.—There exists but one kind of asthma: bronchial asthma. The fact that diseases of other organs co-exist with

asthma establishes no causative relation between such other diseases and asthma. The nature of asthma does neither preclude nor forbid the presence of diseases of other organs. No proof has ever been adduced, nor can there be adduced, that the asthmatic spasm is due to spasm of the bronchial tubes. The proper interpretation of the physical signs in a paroxysm makes such an assumption impossible. Asthma must be recognized as the pulmonic symptom of a gastrointestinal condition and, while various causes may provoke an asthmatic spasm, the cure of asthma depends solely upon our ability to cure the gastrointestinal condition. Neither climatic, nor atmospheric conditions or changes cause asthma, but they do exercise some influence in the progress of the cure. Asthma is not confined to either sex or age; male and female, young and old suffer alike. The prognosis in uncomplicated asthma is excellent. Asthma is curable in about four months.

ation and no fever. He had never spat any blood. He did not feel ill, but about as usual. His family and friends, however, thought he looked badly and said he was pale. The blood and urine examinations were negative. A Wassermann test was made. It also, was negative. There was no venereal history. An X-ray picture was taken and as interpreted, confirmed the diagnosis of pulmonary tuberculosis.

There was a somewhat large, single ulcer in the middle of the pharyngeal wall. A scraping was taken from this ulcer and only streptococci were shown. There were no laryngeal symptoms. It was thought that the ulcer on the pharynx might be due to pemphigus, altho there were no evidences of this disease elsewhere. The patient had been given mixed anti-syphilitic treatment of mercury and iodide of potash with no apparent benefit.

Personally, I found no signs of pulmonary tuberculosis upon physical examination of the chest, but in view of the previous diagnosis, confirmed by the translation of the X-ray picture, I thought it possible, or even probable, that the patient had beginning pulmonary tuberculosis. Therefore, I advised giving up his work for a time and going to a healthful country resort inland and moderately elevated. In addition, I gave the patient a tonic of iron, quinine and strychnine, and told him to paint the ulcer of the pharynx daily with tincture of the chloride of iron and glycerine, one dram to the ounce.

After a few weeks absence from the city, he sends me a most encouraging report. He has gained ten pounds in weight, the ulcer of the pharynx is almost cured, he has no pain in the throat, his family notes his much improved condition and he feels well.

A DOUBTFUL DIAGNOSIS OF PULMONARY TUBERCULOSIS WITH REMARKS ON TREATMENT.

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A few weeks ago, a young engineer fireman came to see me professionally. He had been under the care previously, of a physician who had examined and cared for him according to approved modern methods. At first, he was uncertain as to the diagnosis. The patient had lost considerable weight and on physical examination of the lungs showed apparent signs of tuberculosis. The patient had no cough or expector-

I advise persistence of the same treatment for a while, to remain in the country also, for a time and to report me again, in a few weeks.

This case seems to me interesting and important. First of all, physical examination and diagnosis of chest disease are not infrequently incorrect, simply because the examiner considers certain signs as evidence of disease, when really they are not. They are merely somewhat unusual signs in the aggregate.

As to the X-ray picture: Unless it is properly translated, it is most misleading, as I have already found in quite a number of cases of different kinds.

Hitherto, it has not been my fortune to have to do with pemphigus of the throat, so far as I know. On the other hand, I do not recall having seen a single ulceration of the pharynx like the one mentioned and with no concomitant ulceration of the larynx.

Has the patient incipient tuberculosis and will he again lose weight, show another ulceration of the pharynx and perhaps develop other symptoms of disease, when he returns to the city? I do not know. I hope not. The future alone will settle it.

So far as the mere loss of weight is concerned, and taken by itself, it may mean one of many things and these are often obscure for awhile and it must simply be labeled: rundown—need of a change of air, scene, food, occupation. When these conditions are attended to, weight will often return and the patient again be wholly normal and in excellent shape.

I feel I should report the preceding case because I do not wish others to be misled by mere physical examinations, or X-ray pictures. Today too much importance is attached to both and too little to a fair ap-

preciation of the history, the absence of symptoms and the rational interpretation of the facts of the case, all of which should be carefully considered. Of course, in the case reported, if the patient had been permitted to continue his work and remain in the city, he might surely have shown all the signs and symptoms of pulmonary tuberculosis. Fortunately, I did not allow it. Again, I advised against the use of tuberculin to fix the diagnosis further, if possible. My reason for so doing was that I fear the use of tuberculin, as being uncertain and often decidedly, harmful.

I wish to add that in my experience, the most valuable application in many forms of throat trouble, is the one I used in this case. Not only is it astringent and healing; it is also an admirable disinfecting agent.

In diphtheria, it is sometimes, almost sovereign. Sir Morell Mackenzie, my former great preceptor in his throat clinic at Golden Square, London, England, made use of it far more than any other throat application and praised its value. It was from him that I first learned to rely upon it and have rarely found it failed me. After its use one must be careful to rinse the mouth, especially if there has been any contact with the teeth. The corrosive action of the tincture of iron on the teeth, particularly if there are any fillings, is very marked and injurious. As to the mere discoloration of the teeth which may follow its use, when employed frequently, that may be gotten rid of by the use of tooth paste, or powder, or the orris root points, or cleansers.

Bed-sores.—Try prolonged immersion in hot water baths for indolent bed-sores and large, slowly healing burns. You will be surprised how grateful such treatment is and how often it is highly advantageous.—*Urologic and Cutaneous Review*.

THE ATTITUDE OF THE MEDICAL OFFICER OF HEALTH WITH RESPECT TO TUBERCULOSIS.

BY

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Tuberculosis should be handled on the same public health lines as those of any other infectious disease, that is by discovering the sources and by preventing further spread therefrom; by blocking the routes of infection from unidentified sources so far as our present knowledge will permit; by such a general enlightenment of the public that everyone as a matter of course, may be led to avoid all these sources and to block all these routes of infection, identified or not; and finally, by aiding in the search for any system of protection procedures which may enable the human body to resist the disease.

In surveying the field, let us classify cases of tuberculosis. It is known that two main types affect the human subject, human tuberculosis and bovine tuberculosis. Both of these types are produced by germs which bacteriologically are distinctly different, altho doubtless closely related. However, the diseases themselves are clinically quite distinct. For instance, human tuberculosis is chiefly active and prevalent in subjects over the age of sixteen. Bovine tuberculosis occurs but very seldom in individuals over that age, the vast majority of cases being in young children. Again human tuberculosis is for the most part, at least eight-ninths of it, a disease of the lungs. Bovine tuberculosis on the other hand is found very rarely in the lungs, but is practically confined to bones, joints, intestines,

brain and so on. Moreover, and this point is most important to the health officer, human tuberculosis is spread by means of consumptives themselves, that is, from open cases of tuberculosis of the lungs. On the other hand, bovine tuberculosis is almost invariably disseminated by infected raw milk. Just as soon as we cease to use raw milk or other raw products from cattle, bovine tuberculosis in the human being will, to all intents and purposes, disappear. Pasteurization, or boiling of milk, will put an end to this particular phase of the problem, and the sooner we are civilized enough to carry out that method uniformly and unfailingly the better it will be for the public health.

Human tuberculosis, however, will continue despite all other measures we may take against it, until we either immunize the whole human race, and at present we have little reason on which to base the hope of such a happening, or until we watch the tuberculous members of the human race so closely that spread from them must cease.

The primary duties, then, of the health officer with regard to tuberculosis are, *first*, and least important, to secure universal pasteurization of milk for whatever purpose it is to be used, in order to eliminate bovine tuberculosis; *second*, and most important, to secure early diagnosis and prompt radical treatment of human tuberculosis, especially of the lungs, so that the patient may be prevented from reaching the open infectious stage, and to obtain the prompt isolation and radical treatment of all who have reached that stage, so as to prevent the infection of others. I am convinced that the view commonly held that tuberculosis is usually contracted in childhood by no means always holds good, and

it is my firm belief that a good many people do not become infected until past the age of sixteen.

Any health officer who assumes that in dealing with adults he need not take into account the fear of infection being spread among them is making a terrible mistake. Suppose that we were to handle the army cases on that plan and were to allow all army cases to mix with the other soldiers. From this point of view, consider how senseless it is to disregard the danger to adults from open infectious cases, as well as to say that it does not matter as long as they are not associated with children.

Our plan for handling cases is as follows: Someone suggests that so-and-so has tuberculosis and the course we pursue is this: We decide whether it is an "open" or a "closed" case by careful and repeated sputum examinations. One positive sputum result will of course decide that the case is open. Decision as to a "closed" case is reached on the basis in effect both in army and civil practice. If we get six consecutive negative results within a week, or two weeks, we are satisfied that the case is not "open," at any rate, at that time.

As for the logical distinction with regard to treatment between the open and closed cases: in the first place, there is no question that "open" cases must be isolated at home, in a hospital or in a sanitorium, and for the protection of the public at large, such isolation should be rightly enforced. With the "closed" cases, which are evidently not infectious, advise in the way you think most fitting, endeavor to assure proper treatment at home, in the sanitorium or in the hospital as circumstances permit, and watch those cases carefully. By having these patients report at frequent intervals or by having a nurse see them frequently,

the health officer knows whether any particular case is improving or failing. If a case of this kind becomes "open," it is at once isolated as occasion warrants and permits.

With respect to children, who very fortunately seldom become open cases, the best policy is to bring the matter to the parents in this manner: "Your child has tuberculosis; he is not dangerous to others; he can go to school so far as the health authorities are concerned because he won't transmit the disease, but he is in a delicate condition, and for the sake of the future he should be well cared for." In many instances the wisest plan would be to remove that child from school and send him to the preventorium or to take steps calculated to most quickly bring about recovery. If the child continues to attend school he must report every two or four weeks as may be thought advisable.

One of the points we most strenuously insist on is this; when we find an open case of tuberculosis in a family or a closed one, for that matter, we do not stop with that case. We examine all the other members of the family, and often too, close associates outside. The line is being drawn very sharply between open and closed cases. If the case is a closed one and the patient is recommended for free treatment in the sanitorium, all the routine usual in such cases is gone thru and it may be two or three weeks ere the sanitorium is reached. But if it is an open case, we simply despatch it forthwith to the sanitorium or hospital, and it matters not an iota whether the city authorities are inclined to pay for it or not; they have to.

The important distinction, therefore, is that the open case is usually the adult case and consequently the greatest menace. Two

hundred years ago, one-quarter of the entire population of Europe died from tuberculosis. If cases of chicken pox can be isolated, why cannot the same be done with tuberculosis and syphilis, and why cannot we get rid of disease and not concern ourselves so much with a lot of things that really are of no consequence?

In the present inorganized state of civilian medical service, our efforts must necessarily be spasmodic and uneven, must fail in comprehensiveness and fall far short of the ideal. Only annual, or semi-annual or even more frequent medical inspection of all citizens can achieve the really early and efficacious diagnosis of tuberculosis. Until our civilian medical service is remodelled and made compulsory, we shall have to face a continual development of early cases into cases which next week, or next month or next year, will be infecting new subjects, which in turn, may be new sources of infection for days, or weeks, or months or years before they are recognized at all.

Hence we shall probably secure our most immediate results by being constantly and carefully on the lookout for the "open" cases, and by promptly isolating them prevent further damage.

I am perfectly convinced that our sanatoria should be so designed that "open" cases should never mix with "closed" cases. Further, I am strongly of the opinion that sanatoria for "open" cases should be so designed that the open cases need not mix with each other, at any rate while they are running a septic temperature. Everyone who has had experience in the treatment of tuberculosis is convinced that upon the discovery of an "open" case in a household, every other member of that household and all those who have been in the custom of frequently visiting that household should

be registered, examined and watched for months.

To do all these things as they should be done, is not at the present time practicable, but to accomplish them some day is absolutely necessary if the race is to emerge from its existing terribly infected condition. It is, therefore, the bounden duty of every health officer to work, whenever he has the opportunity, for the day when medical inspection of every citizen at frequent intervals, and prompt action on the findings, will be an accepted and natural routine. Then, and only then, will tuberculosis disappear, and not tuberculosis alone but all our severe infections as well. The army is doing an immensely valuable service in the direction of educating the public in what a civilian medical service can and should achieve, and I believe one good result of the great war will be the ultimate abolition of the infectious diseases of which group tuberculosis is so prominent and direful a member.

GONOCOCCEMIA AND METASTATIC GONORRHEA.

BY

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Samuel P., 21 years, white. Fruit and produce dealer. Single. Jewish. Had measles when a child. Influenza, during October, 1918. Received an injury to chest (left) and contusion of left hip in an automobile accident, December, 1918. Had his first attack of gonorrhea September, 1918. The second attack (?) began Jan. 2, 1918, two or three days after exposure.

In the third week of the specific urethritis he was seized with pain in left hip and some pain in right wrist. Complained of no difficulty on urination, no dribbling, etc. Urethral discharge present. Had

been treated for past few weeks for his gonorrhea by a Philadelphia doctor.

During this period, and until about a week previous to my seeing him, he was out all night and exposed to sexual excitement and intercourse (while having an active discharge). A few days later this arthritis began in wrist and hip. Denies ever having had a chancre or rash at any time. Never had rheumatism, malaria, typhoid fever, and never had any trouble with joints, teeth, eyes, ears or sinuses; did have some sore throat when younger.

Father died of carcinoma of the breast. Mother, brothers and sisters living and well. No tuberculosis or lues traceable in family.

Some fever present; the pulse and respiration varying accordingly. Temperature ranged from $99\frac{1}{2}^{\circ}$ to 103° . Had chills and chilly sensation; insomnia; dry coated tongue, parched lips, crying with pain; restless, nervous, and slightly delirious at night during sleep. Patient was septic in appearance.

The gonorrhea blood complement fixation tests were all positive (several different laboratory reports):

Urethral Smear.—Positive for gonococci.

Syphilis.—Blood, Wassermann and Noguchi tests all negative (three different laboratory reports).

Malaria.—Negative blood smears.

Typhoid Fever.—Negative Widal reaction (several times).

Blood Culture.—On early blood cultures, no growth was obtained. Recent blood cultures have not yet been reported to me.

Blood.—Secondary anemia of mild grade present. Due to the general gonorrhreal infection (septicemia) and metastatic involvement. Hemoglobin, 75%; (2/3/19); W. B. C., 16,400; Pmn. 84; S. M. 13, L. M. 1, Eosin. 2, R. B. C. 4,160,000.

Urine.—(1/27/19). Trace albumin. All qualitative tests negative—for indican, sugar, diacetic acid, acetone, etc. A few R. B. C.; a few pus cells; ammonium urates; total solids 35 gms. per litre. Urea 1.14%. S. G. 1.015. No casts. Some squamous cells.

Reaction alkaline (due to medication). (2/3/19 P. M.); Amber. 1.015 S. G. Some indican, very faint trace albumin. Some W. B. C. Some bladder epithelial cells.

Many cylindroids. Few uric acid crystals.

Urine specimen, 2/4/19 A. M. Amber; 1.013 S. G. Acid. Trace albumin. Indican + many W. B. C. Few R. B. C. Some bladder epithelial cells. Very few hyaline casts and many cylindroids. Some amorphous urates.

Blood Pressure.—Systolic 110-112 to 108. Diastolic 74.

Heart.—Sounds weakened tone, and at times a very faint murmur heard, especially after deep breathing and then holding breath. Possibly due to the anemia or a beginning acute endocardial or myocardial involvement.

Lungs.—Except for a few scattered râles, were negative. A slight cough, due to an associated tracheobronchitis, or the myocardial weakness.

Treatment.—Dial-Ciba, or barbital, and morphin one-eighth to a quarter of a grain and bromides, given on several occasions as required. The patient has received complete and absolute rest in bed for three weeks with Blaud iron pills for the anemia. Pure oil Santal in capsules and argyrol injections for the local condition, which was clearing up nicely. Plenty of water to drink. A natural laxative water for the bowels. Also heavy mineral oil, etc., and alkaline rectal enemas—both evacuating and irrigating. Polyvalent antigenococcic serum intramuscularly and intravenously. Gonococcus vaccine hypodermically and intramuscularly. Small doses of mercury and large doses of syrup ferri iodide for different periods. The most satisfactory and most rapid relief of pain and improvement was noticed after the combined use of the vaccine and one large intravenous injection of the antigenococcic serum (50 c. c.), given when he was very septic and suffering greatly. The relief and improvement were almost magical. Dr. Alfred C. Wood, of the University of Pennsylvania, saw the patient with me and believed that cause and effect in this case, would indicate the further use of specific serum (vaccine) therapy. No other medication received at the time could possibly have had such beneficial effect.

A few days ago, X-ray examination was advised to decide whether there is an arthritis, an osteo-arthritis, or effusion in the joint, etc., and his removal to the hospital urged for this purpose, and for the possible relief of pain by Buck's extension

or plaster of Paris splint, etc., or any possible operative interference, that may later be necessary, in the opinion of the surgeon.

About a week after the initial administration of the polyvalent antigenococcic serum, patient had some urticaria with marked itching, which passed away after a few days. Before he received the large serum doses, he had received a small injection of the serum as a desensitizing dose. This prevented any marked anaphylactic serum reaction. After the large intravenous injection of the serum, he received 15 min. of adrenalin solution and a very small dose of atropin, to ward off any possible after-effects. However, the patient took the specific therapy without any untoward results and with considerable improvement until lately, when his pain returned after the specific treatment had been discarded for several days, and when he was advised to go to the hospital for the X-ray studies, etc.

Careful measurement was made of the urine output and of the intake of all fluids. The urinary output was quite satisfactory and his kidneys at no time gave us any concern. Locally, for the relief of pain in the joint I ordered hot water bottle, hot turpentine stapes, tincture of iodine painted on the affected area, and the old, reliable ointment containing, ungu. belladonna, ungu. hydrargyri, and ichthyol, at different times. I did not use calcium sulphide nor any of the other supposedly efficient internal remedies. Early in the treatment he did receive some urinary antiseptic (urotropin) and mild alkaline diuretics.

Later on, while in the hospital, he developed an arthritis of knee which gave him considerable trouble. I believe this may have been prevented had the use of serum and vaccine been continued. Failures are, at times, due to inadequate dosage of sera and vaccines or because they are not polyvalent preparations and of the proper strains.

It is very important to know whether there is an arthritis or an osteo-arthritis with bone and cartilage destruction or rarefaction, because the second type will demand longer rest and more careful fixation of the affected joint, whereas in the first, earlier massage and passive motion will help to prevent formation of adhesions and give him early use of his leg.

Leeches and blisters over affected joints may give some relief.

CONCLUSIONS.

In regard to gonorrhreal arthritis, first be sure that your arthritis is of gonorrhreal origin. This can be ascertained by the history, the age, the sex of the patient, by the complement fixation test for gonorrhea, and of course, smears from the urethra and smears after prostatic massage will help. All of these cases have a focus of infection some place and this is usually in the prostate or the seminal vesicle in the male and in the tubes and ovaries of the female. The gonorrhea cannot be eliminated unless you treat these foci of infection. The best method of treatment other than the rest and local treatment is the administration of large doses of anti-gonococcic serum, say up to 50 c. c. This is given best, ordinarily, in doses of 10 or 15 c. c. on successive days. The action of the serum is enhanced by the combined administration of mixed polyvalent vaccines in doses varying from a quarter of a billion to two, three or even four billions. In the more subacute or chronic cases, the careful administration of fresh vaccine in large doses seems to do more than the serum alone. The preferred method of treatment is a combination of the two. Occasionally on the eighth or tenth day following the administration of the serum there is an anaphylactic reaction. This can best be controlled by the administration of adrenalin, 1 to 1,000 in 15 minim doses every 4 to 6 hours, and a 100th to 150th of a grain of atropine hypodermically. Large doses of alkaline remedies, especially alkaline waters, can be given until the reaction subsides.

If the gonorrhreal rheumatism does not then improve, one must keep on with the local treatment, prostatic and vesicle mas-

sage, etc. Then again, failure in improvement may be due to inadequate dosage of anti-gonococcic serum and anti-gonococcic stock vaccine; the intravenous administration of the serum may act more promptly in severe cases. Finally, don't forget the tonsils, bad teeth and infected sinuses are the most frequent cause of an arthritis, and that this source of infection may be overlooked even if there is a urethritis present.



Under the Editorial Direction of Albert C. Geyser, M. D., New York.

SOME DEDUCTIONS CONCERNING CANCER OF THE UTERUS.

Dr. J. F. Baldwin, in an interesting article in the *Ohio State Medical Journal* a short time ago, points out that high amputation by the cautery as practiced by Byrne of Brooklyn, has given good results, but that most surgeons still prefer panhysterectomy. The original Wertheim gives the best results, but the primary mortality has been so high that the operation has never become a favorite one. Lately two methods of treatment have been advanced: one, the "cooking" of the cancer, in which the vitality of the growth is destroyed by means of an electrode heated to a temperature several degrees below that which destroys normal tissue; and the other, the use of radium, which is especially of value in inoperable cases.

High amputation is and remains high amputation. Whether the knife, the cold snare, the electric cautery or whatever other method is used, the end results are practically the same. If the surgical technic is correct there ought to be just as little loss of blood with the one as with the other. When a radical removal of the uterus and the adnexa is undertaken, however, the sudden removal of so much important tissue often causes too much physical shock; hence the undesirable primary mortality.

In the cooking method, the object to be attained is to destroy the cancer cells *in situ*. If these cells were located all in one certain region, if there was no such thing as constitutional susceptibility, or if one could be sure that cancer was a local disease, then the removal or the destruction of cancer cells *in situ* would be the ideal. The particular method employed is of little consequence. If the knife removed all of the diseased tissue, left a clean, healthy wound and healing took place promptly, all ends would be served. In the cooking process the cancer cells are killed and the system throws them off in the form of a slough.

In analyzing the benefits of this method it should be pointed out that the less the physical destruction and the more is left for nature to do, the better it obviously is for the patient.

The application of radium to a cancer of the uterus, as in many other affections, has much to recommend it, but like most of the other methods that have been used in cancer it also has much to condemn it.

When radium is applied to any living tissue there ensues as the result of its emanations, a very pronounced cellular disturbance. It is really an ionic disturbance of the vibratory rate of the cells, which essentially results in cellular disharmony. The system promptly reacts with a localized inflammatory process. Between the ionic cellular disturbance and the attempt on the part of the inflammatory process evolved, a cell change occurs. This change is frequently of a beneficial nature. The cancer cells are either slowly absorbed or, what is of greater importance, their unphysiologic function is interfered with. As a result a localized cancer, especially of the superficial variety will frequently be more or less permanently eradicated. If, on the other hand, the original lesion has already invaded the system, then, of course, failure must be anticipated. Neither is it possible to judge the dose to be administered correctly in each case, since the personal equations of the patient's reaction and the physician's acumen play an important rôle.

On general principles it may be stated that any method which depends entirely on destroying the cancer cells *in situ* by some system of complete removal, as by the knife, cautery, cooking, caustics or radium, cannot, and does not, take into consideration

the systemic relations of cancer. If cancer was always a local disease, then local operative procedures might be expected to prevail. The moment that cancer is considered a constitutional disease, from that moment on the treatment must be more or less constitutional or, at least, physiologic.

It is true, of course, that some cancers are and remain a local disease. Removal or destruction of the mass in these cases should be followed by complete recovery and permanent cure. Some cancers are local only during their early stages, but because of constitutional dyscrasia sooner or later become constitutional. Early removal by any proper method produces a large percentage of permanent cures. It is this class of cases that furnish the foundation for the various claims of cure by knife, cautery, radium, caustics or the X-ray. The later the operation, the more susceptible the patient, the greater the percentage of recurrences.

In some cancers the constitutional symptoms are more pronounced than the local from the first. There are usually two paramount reasons for this: Either the patient did not discover the lesion during the purely localized stages, or when the lesion was discovered, it was because the constitutional symptoms were more prominent than the local lesion. Here exclusively local operations, except for temporary cosmetic or symptomatic reasons, are contraindicated. They not only almost always fail to effect a cure of the disease for which they are undertaken, but as a rule do not contribute to the longevity of the patient.

The Cancer Function.—It is not the anatomical formation nor the mere presence of a tumor which destroys the life of the cancer patient.

Cancer cells, no matter where located, are not in harmony with the physiology of the system. Every living cell, as every living individual, must perform a dual function; one is an individual function, performed mainly for selfish reasons. It includes individual existence, maintenance and the propagation of the species. As far as the cancer cell is concerned we have no fault to find with this one function. The second function is a sort of communistic or social function. By the performance of this function the system as a whole is benefited.

each cell is in harmony with all the other cells of the body; in short it is physiologic. In order to perform this physiologic function in a physiologic manner, each cell must assist and be assisted by each neighboring cell. In other words, it must be in harmony with the entire constitution of the individual. Cancer cells are not in harmony with the system, they do not assist, nor are they assisted by their neighboring cells. Whatever function the cancer cell does perform, it is unphysiologic and, therefore, detrimental to the body as a whole. The secretion or the excretions of a cancer cell are not only detrimental, but they compel the rest of the system to guard and defend itself against them. As long as the system is able to perform this defensive function in an adequate manner, so long will there be a balance maintained. Failure in this on the part of the system means defeat, cachexia and death.

When we speak of maintaining a balance we simply mean that the two opposing forces are for the time being equal to or equalized by each other.

What Are the Opposing Forces?—The cancer cells give off an excretion or a secretion which is not in harmony with the system; it is unphysiologic, a foreign substance, a veritable poison. This toxic material being manufactured within and by the living cells of the body, sooner or later comes in contact with and exerts its malign influence on some of the normal cells. When such an abnormal influence is manifested there is an interference with the normal physiologic function of the affected cells, followed by bodily cachexia and death of the individual.

The Anti-toxin.—In order to neutralize this toxic material the system possesses the power of manufacturing an anti-toxin. As long as this is furnished in adequate amounts there will be no cachexia, because the attraction is greater between the two chemical compounds than between either of the compounds and the cells. Since then the anti-toxin neutralizes the toxic effect of the cancer toxin, it follows that the strength of each bears a definite relation to the other.

Again, since the anti-toxin like the toxin, is manufactured by the cells of the same system, it must also possess the same power of reaching and influencing the normal tissue cells. Such an influence must be

equally unphysiologic. Let us see what probably happens if such a combination does take place. The cancer cell produces a toxin. The system, probably the endocrine organs particularly, is activated into producing something not usually present. To do this some cells are obliged to assume a new function, perhaps a new anatomical formation. All of this comes about as a result of the stimulation or irritation of the cancer toxin. Let us suppose now that suddenly the original cancer cells are removed, yet the anti-toxin is still present in large amounts, what office or function will now be performed by it? Since it has admittedly no function now to perform, it like the toxin, must be neutralized or destroyed. What is going to destroy it? Logically there is only one substance capable of doing this and that is the cancer secretion. Where is this now suddenly to come from? Could not this free and useless anti-toxin cause certain normal cells to take upon themselves the function now of producing the toxin? If this is so, then we can understand why a cancer, after it has become constitutional and is completely removed locally, still tends to recurrence and metastasis. Again and again it may be removed and as many times it may recur. This recurrence need not be at the site of the original lesion; it may be anywhere where susceptible or responsive cells are to be found. In the one instance such cells may be found along the course of the lymphatics, in the other along the blood vessels.

The local removal of a cancer which has become constitutional in character, no matter which particular method is employed, cannot, therefore, be looked upon as a curative measure. To cure a cancer it is necessary to remove the cause. Cancer cells, like other cells, functionate best within a certain temperature radius. Experimentally it has been determined that when cancer cells are subjected to a long continued temperature of 104° F. they cease in the performance of their function, which function is so inimical to the life of the patient. Let this cancer function cease and the patient lives, because there is no reason to do otherwise.

Physiologic Therapy.—Heating the cancer cells to a temperature of 104° F.

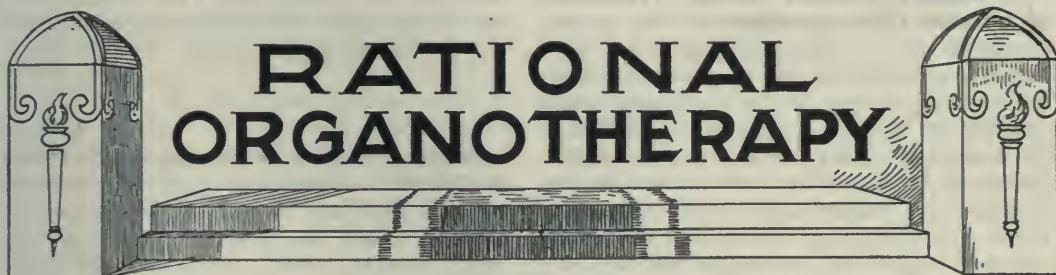
and over interferes with the unphysiologic cancer activity. The quantity as well as the quality of the toxin is gradually changed. The general system responds by lessening and changing the production of the anti-toxin. When neither toxin nor anti-toxin is formed, there is no longer a malignant condition present. The tumor *per se* is, as before stated, of little consequence. It may be left or it may be removed for cosmetic or other reasons the same as any other benign growth.

Technic.—A high-frequency apparatus is required which must possess a rather high rate of alternations, a low voltage and a comparatively high amperage. A diathermic apparatus gives a wide range of variation and is particularly suitable for this kind of work. It is essential that the malignant growth is so situated that it can be placed between the two electrodes of the apparatus. When the meter gives a reading of 1000 milliamperes, the temperature in the uterus will indicate about 106° F. with an ordinary fever thermometer. In cases of breast tumors a reading of 2000—2500 milliamperes will produce a temperature under the active electrode over the tumor of 106° F. Such a temperature must be maintained for at least one hour, either daily or on alternate days.

After a few treatments the heat is retained in the parts from two to eight hours following each treatment. The harder the mass the longer the heat retention.

After about one month to six weeks the patient usually shows a decided general improvement. Sometimes the tumor disappears entirely, sometimes it simply becomes smaller. If the uterus was firmly adherent this becomes freely movable. If prior to the treatment there was no uterine discharge, there is now an almost constant "beefwashing" discharge; if there was an offensive discharge it is changed to a non-odorous one. Pain ceases early and, as a rule, permanently. All clinical manifestations of the disease disappear, the patients gain in weight and become to all intents and purposes normal individuals.

Old cases treated as far back as 1910 are alive and well; in some there are still traces of a tumor, in others there is no sign of foreign growth. The treatment can be recommended as painless, bloodless, efficacious and in most cases permanent.



Endocrine Dysfunction.—More and more have we come to appreciate the great importance of the glands of internal secretion—the endocrine system—in maintaining normal health says an editorial writer in the *Jour. of the Indiana State Med. Assn.* (July 15, 1919). As our knowledge of the function of the various members of this system increases the more do we realize how profoundly they influence the animal organism.

Many, if not most, of the normal bodily activities and functions are directly or indirectly controlled or regulated by this endocrine system. In fact, in many ways it seems to be the regulatory system of the animal body. The growth, the development, the metabolism, the catabolism, the sex characteristics and functions, all these and apparently many more of the vital activities of the body are dependent on the properly coordinated function of the ductless glands. When these function properly, normal health results; when there is improper function—dysfunction—of this system, abnormal processes appear in one form or another.

As a result of the increase of our knowledge along these lines we have learned that many symptoms which hitherto formed vague, obscure, or indefinite clinical complexes can now be explained, to a certain extent at least, if not altogether, as due to a disturbance of the function of the ductless glands, *i. e.*, endocrine dysfunction. Over (*hyper*) activity or under (*hypo*) activity of one or more glands of this system can give rise to symptoms that may be pathognomonic of such perverted function or not. There are certain well-defined symptom complexes that are characteristic of perverted function of certain definite glands of this system. They have been recognized for some time, and are already quite well known. But we are now learning further

that many of the so-called vague functional disturbances are not merely imaginary, but have as their basis disturbed endocrine function.

Among the functions that are regulated by this system is menstruation. The internal secretion of the ovary, in coordination with the internal secretion of the pituitary and the thyroid, regulates the function of menstruation. When this system functions normally menstruation is normal, but when there is dysfunction, menstruation is abnormal. Heretofore disturbances in the latter process were blamed on the uterus, and that organ was unhesitatingly subjected to dilatation and curettage. Whenever there is a definite pathologic process within the uterus, such a procedure can remedy the menstrual disturbance by removing the obvious cause. But in the vast majority of cases the cause is not within the uterus. The abnormal menstrual process is simply a manifestation of abnormal activity of some of the endocrine glands, and the rational way to correct such menstruation is by proper endocrine therapy.

In view of this newer knowledge it has become self-evident that the operation of curettage is not only not indicated in a great many, perhaps nearly all, cases in which it has been and is even now being done, but is absolutely useless. Such an operation cannot reach the cause of the trouble. The gynecologist has found out that he must attack this trouble not with his curette, but with the proper medicines. This idea is quite frankly expressed by one of our leading gynecologists (S. W. Bandler) in these words: "I hope that some day there will be a law that before we curette a patient we must get a license or permission from some central authority to use it in a particular case, and then only after giving genuine reasons therefor."

Mammary Extract in the Treatment of Uterine Fibromyomata.—After giving a record of his individual experience with mammary therapy in the treatment of uterine fibroids, Briggs, in the *California State Journal of Medicine*, says that it indicates the remarkable, but perhaps not invariable, influence of mammary extract on uterine fibroids and menorrhagia, their most frequent and distressing symptom. Mammary extract, even with prolonged use did not seem to produce any untoward results. In some of the cases he combined it with hydrastis and ergot and occasionally, tho rarely, the combination produced more or less gastric disturbances which subsided, however, on the suspension of these two drugs. Other untoward results, either from the combination or from the mammary extract alone, Briggs had not observed even after prolonged use. On the contrary, there was generally a distinct improvement in the physical health as well as in the morale of the patients, probably chiefly attributable to the arrest of the menorrhagia, the relief of pressure symptoms, and the relief of mental strain due to fear of operation. The mammary hormone probably antagonizes the follicular hormone or inhibits its production and thus moderates or prevents an excessive menstrual molimen and its consequent hyperemia, menorrhagia and local nutritive disturbances. The effective dosage, therefore, would seem to depend on the degree of excessive ovarian activity—the greater this functional activity the larger the quantity of mammary extract required to inhibit or antagonize it. A daily quantity of the extract representing from twenty to fifty grains of the fresh gland was used in the cases here reported. The dosage in several of the cases was too small. This accounts, perhaps, for the comparative or even absolute failure of the treatment in a few of the cases and possibly also for the absence of gastric irritation occasionally noted by others. At present Briggs says he usually prescribes thirty to forty grains daily and, in refractory cases, increase to fifty or sixty. Pregnancy seems to be the only positive contraindication to the use of mammary extract. In two of the cases reported, however, its continued use did not prevent pregnancy. In both of these cases mammary extract was given for some time before and for three months after conception.

tion and in a third case (in consultation) for the last four months of pregnancy without provoking interruption.

Saline Solution with Organ Extracts in Shock.—Descomps and Clermonthe (*Presse Medicale*, August 22, 1918) present thirteen cases of shock, hemorrhagic or toxic, treated within from 6 to 24 hours after injury by intravenous injection of a hypertonic solution of about the same composition as Ringer's solution—to which was added a few mils of soluble extracts of thyroid, hypophysis, adrenals, testicles and spleen and a little strychnine and digitalin. This was administered to supply the temporary deficiency in the blood of the secretions of the endocrine glands, which exert a controlling action on the functional activity of the sympathetic and maintain the action of the vasomotor centers. Circulatory disturbances are a conspicuous feature of all shock.

Eight of the patients thus treated recovered and in five the measure was a failure.

The successful cases showed a regular and forcible pulse within six or eight hours. Blood pressure rapidly increased. Persistent diuresis and increased daily elimination of urea were noted. Urea output increased above the average to twenty-nine up to forty-two grams, suggesting an action on the liver. Chlorides were low. The specific gravity of the urine was always normal or above.

In some cases there was a diminishing of delirium, restlessness and mental disturbances.

The Use of Pituitary Extract in Obstetrics.—While extract of the hypophysis, according to Schwaab (*Presse Medicale*, 1919, XXVII, page 299), is of value in the treatment of uterine inertia in the course of labor, its use to provoke labor is absolutely improper. It has no effect in activating an abortion in progress nor does it assist in the expulsion of a retained placenta in abortion. In all of these cases the uterine musculature is too weak to be influenced by the extract.

The author is of the opinion also that

pituitary extract should not be employed during the period of delivery at term. Generally it has no effect when delivery is delayed because of uterine atony without hemorrhage; in such cases it even tends to disturb normal contractions and to produce instead contractions of Bandl's ring with incarceration of the placenta. When there is hemorrhage at the time of delivery, pituitary medication should yield to other methods.

In caesarean operation the author is of the opinion that ergot is preferable to pituitary extract to stimulate uterine contraction.

In urinary retention after childbirth, however, the indication for the use of pituitary extract is clear. In numerous cases the contractions of the bladder are stimulated and catheterization is avoided.

Schwaab has never observed any inconvenience with the use of weak subcutaneous injections of pituitary extract, but heavy doses and intravenous injections are apt to cause nausea, delirium, circulatory lipothymia, etc., in the patient and circulatory disturbances and apnea in the fetus. Another effect which many authors ascribe to pituitary extract is tetanization of the uterus either during labor or delivery. In Schwaab's opinion, however, this complication is exceptional when the doses given are weak.

The Stimulation and Inhibition of the Gastric Secretion Which Follows the Subcutaneous Administration of Certain Organic Extracts.—Rogers, Rahe and Ablahadian, in the *American Journal of Physiology* for Feb., 1919, give the following conclusions:

1. A slightly alkaline saline solution, or alcohol, extracts from the thyroid some non-coagulable material which is a vigorous stimulant for the gastric secretion.

2. This material produces its effects at least in part by intensification of the functions performed by the terminal filaments of the (gastric) vagus.

3. Extracts similarly made from the pathologic tissue of adenomatous or hyperthyroid human glands are inert.

4. Extracts of the adrenal gland vigorously inhibit gastric secretion.

5. These extracts of the adrenal gland

all contain more or less adrenalin, and therefore it is presumable that their effect is produced by intensification of the inhibitory function which is ascribed to the (gastric) sympathetic.

6. Adrenalin is not as active a gastric inhibitor as the adrenal nucleoproteins obtained from extracts of the whole gland. These adrenal nucleoproteins contain only traces of epinephrin.

7. Extracts of the pituitary gland also inhibit gastric secretion, but only about one-half as vigorously as do extracts of the adrenal.

A Thought on the Internal Secretions.

—Ghedini (*Gazzeta d. Ospedali*, Jan. 5, 1919) says that the true internal secretion of an organ is contained in the venous blood issuing from that organ, and he insists that instead of using organic extracts we should employ this venous blood. The cells of the organ cease to secrete when they are dead, hence removal from the body to make the extract not only arrests production of the internal secretion, but probably modifies essentially the delicate secretion already on hand in the tissues of the organ. Instead of a living secretion we get only a dead and possibly decomposed product. The efferent blood contains the secretion in its maximum vital potency. He published in 1911 research on the thyroid secretion thus obtained in the efferent blood, and in 1913 and 1915 similar research on the venous blood from the suprarenals, pancreas and testicles. Manfredi announced in 1913 that the efferent blood from the pancreas inhibited certain actions of epinephrin. The difficulty of obtaining the efferent blood or lymph hampers and limits the research in this line, but this is the goal to be aimed at by investigators.

The Ductless Glands in Chronic Tuberculosis.—Bobbeau (*Presse médicale*, February 24, 1919) having determined in guinea-pigs succumbing to slowly progressive tuberculosis, marked impairment of all the ductless glands, came to look upon polyglandular ootherapy as an advantageous auxiliary to any of the usual methods of tuberculosis treatment. Patients actually treated with ductless gland products were

markedly improved. Attention is called to the fact that the ductless glands do not function separately, but in mutual harmony. This is especially true of calcium metabolism, the endocrine secretions constituting one of the mordants indispensable for the fixation and utilization of calcium by the organism. Polyglandular ophotherapy is thus to be considered an adjuvant measure in the remineralization cure of tuberculosis. Disappearance of dental pain, which in the author's cases always took place when urinalysis showed that demineralization had been arrested, is an excellent clinical sign of improvement. It may even prove feasible, with the aid of the X-rays, to formulate a convenient scale for better appreciation by the physician of the process of remineralization in tuberculosis cases.

Leucocyte Extract for the Treatment of Undetermined Infections.—Dr. G. F. Leonard of New Brunswick stated in an interesting paper before the Med. Soc. of N. J. that it was not claimed that leucocyte extract was a specific for any disease, nor that it was a panacea. From the clinical evidence available, however, he had arrived at the following conclusions: (1) Leucocyte extract was harmless in localized infections, superficial and deep. (2) Its use had proved beneficial, many cases being cured, and others improved. (3) In pneumonia other than type 1, it improved the general condition, made the patient more comfortable, probably shortened the course of the disease, and decreased the mortality. (4) In any undetermined infections it was the sole biologic product indicated. (5) In infections attended with high leucocytosis, such as was found in measles and influenza, the administration of leucocyte extract resulted in an increase in the number of leucocytes, and was therefore indicated. The author stated that in cases in which there was a specific serum, that alone should be used; but that in cases in which there was no specific serum, and in those in which the infection was not known, the use of leucocyte extract was particularly of value.

Arteriosclerosis.—The most potent factor in arteriosclerosis is overfeeding. The most universal factor is gastrointestinal autointoxication.



Is Compulsory Health Insurance Inevitable?

To the Editor

AMERICAN MEDICINE:

This is the first question that the Committee on Public Information of the Medical Society of the County of Schenectady had before it when we undertook the investigation of the subject of Compulsory Health Insurance.

We had heard for several years the often repeated statement that Compulsory Health Insurance was inevitable and that the medical profession had better make the best of it. When we came to study the actual data at hand we found several very interesting facts which are briefly as follows:

Ninety per cent. of the "inevitability" talk can be traced directly to Mr. Andrews and a few other propagandists for Compulsory Health Insurance. It is part of the propaganda.

Only an overwhelming popular demand will make inevitable a law which will reverse the very history of the State and substitute for a policy of individual liberty and self help a policy of control of the individual and State help. There is in this State almost no popular demand for any such change.

The only persons who are alleged to benefit from this distinct class legislation are the laboring people. It is well known that the farmers, the merchants, the manufacturers and the common people are against Compulsory Health Insurance. Even labor is not in favor of Compulsory Health Insurance.

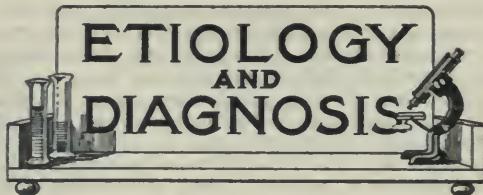
In California last fall the whole stage was set in favor of Compulsory Health Insurance. The legislature had passed a constitutional amendment in favor of it. Hiram Johnson was in favor of it. The so-called commission to investigate the subject, composed chiefly of American Association for Labor Legislation propagandists, had reported in favor of Compulsory Health Insurance. The professional labor leaders were for it. There was an intense education campaign extending over the entire State. *When the question came to a state wide popular vote Compulsory Health Insurance was defeated by a vote of nearly 3-1 and labor did not support the measure.*

In Utica last spring there was a campaign of education on the subject followed by a popular vote on the subject. Thirteen thousand factory employees voted on the subject. Did they vote for it, or 2-1 against it, or even 10-1 against it? No, they voted 12,875 to 112 or 100-1 against Compulsory Health Insurance.

Any law which is fundamentally unjust; which demands that industry pay fifty per cent. of the costs when industry is responsible for less than one per cent.; which teaches the doctrine that it is unhealthy to work; and which substitutes a policy of control of the individual and forced charity for the policy which has made this country what it is—such a law is not in our opinion inevitable.

Very truly yours,

COMMITTEE ON PUBLIC INFORMATION,
MEDICAL SOCIETY OF THE COUNTY OF
SCHENECTADY.



An Appeal for Human Embryologic Material.

To the Editor

AMERICAN MEDICINE:

In 1906 I observed certain malformations of the human shoulder-blade, and in contributions to current literature I have given them the collective name, "the scaphoid type of scapula," and pointed out some of its hereditary, clinical and anatomical significance.

Probably the most important observation connected with this type of scapula in man is its age incidence, that is to say, it occurs with great frequency among the young and with relative infrequency among the old. There appear to be two possible explanations of this fact:

either

A—One form of shoulder-blade changes into the other during development and growth,

or

B—Many of the possessors of the scaphoid type of scapula are the poorly adaptable, the peculiarly vulnerable, the unduly disease susceptible—the inherently weakened of the race.

I have attempted to answer these questions by seeking evidence in various directions and one of the most important of these has been a study of intrauterine development of shoulder-blades. My investigations in this direction have been limited by the material at my disposal, which has been inadequate for a definite solution of this phase of the problem. I am, therefore, appealing to physicians for fetuses in any and all stages of human development.

It is desired that the material, as soon as possible after delivery, be immersed in 10% formalin in a sealed container, and be forwarded to my address; charges collect. Due acknowledgment will be made to those forwarding material.

Respectfully yours,

WILLIAM W. GRAVES.

727 Metropolitan Bldg., St. Louis, Mo.

The Etiology of Appendicitis.—Selberg (*Munchener medizinische Wochenschrift*, Mar. 21, 1919), contrary to certain writers, believes that appendicitis has not decreased either in frequency or in gravity since the war. The war alimentation seems rather to have increased the number of cases. The infectious estival enteritides bring about an increase of appendicitis.

The Etiology of Migraine.—Reviewing the various theories that have been advanced in the attempt to find an explanation of the origin and nature of migraine, Drs. Mary P. S. Rupert and Elizabeth E. Wilson (*Amer. Jour. Med. Sci.*, March) conclude that the symptoms of migraine arise from stimulation of certain areas in the central nervous system and that this stimulation may be provoked in many ways: by pressure, by reflex stimulation or by circulation of certain toxic substances in the blood.

In their attempt to determine the nature of the toxin, or toxins, the authors undertook careful studies of the gastric contents and of the feces of patients afflicted with migraine. It was found that many of these patients register an abnormally high blood pressure during the attack. Furthermore, patients having frequent and severe attacks of migraine exhibit, during the latter, some abnormality of the stools, usually putrefaction with alternations in the blood pressure, and these usually are accompanied by a depression of the renal function including some disturbance of the nitrogen output.

The variation of blood pressure between attacks corresponds with the findings in the stool. For instance, a persistently low blood-pressure reading is likely to be associated with an occasional putrefactive movement and, as this condition is corrected, the attacks become less in frequency and severity. In some cases, there then occurs an improvement in the blood pressure between attacks.

It still is to be determined where and what is the source of the irritation and the authors are extending their investigations in this direction, namely, the attempt to discover the probable caustic toxin.

Tuberculosis of the Anus and Rectum.—*Symptoms*.—The local symptoms of tuberculous ulceration, if of the sigmoid or rectum, are lumbar or sacral pain and rectal tenesmus accompanied with diarrheal evacuations of pus, blood

and mucus. The diarrhea is slight at first but increases as the ulceration spreads until thirty or forty evacuations occur daily and the associated coloproctitis disturbs digestion in general. The discharges have a gangrenous odor. Bleeding is not profuse but as the oozing is persistent the blood may accumulate and be retained in the rectum and when voided may be fresh, or tar-like or mixed with the feces.

Diagnosis.—Drueck (*Med. Summary*, Sept., 1918), claims that tuberculous ulceration of the bowel should be looked for in every tubercular patient when diarrhea occurs that cannot be accounted for by overeating of improper food, or by other dietetic errors and which does not promptly yield to treatment. The presence of tubercle bacilli in scrapings from the ulcer is strong evidence of the nature of the trouble, altho the possibility of accidental deposit of tubercle bacilli on a non-tubercular ulcer must be remembered. The clinical picture is, however, somewhat characteristic. (1) The presence of tuberculosis elsewhere, as in the lungs, lymphatics or the genito-urinary system. (2) Ulcers which follow the course of the blood vessels and in the rectum spread out irregularly in every direction. (3) Diarrhea, discharge of mucus, blood and pus with rectal tenesmus. (4) General emaciation of the patient with great loss of body fat. This may be expressed locally by the consumption of the perirectal fat and a shrunken or funnel-shaped anus.

It is essential that workers be able to recognize the disease which they are studying. They should know its history and distribution, whether it occurs in pandemic, epidemic, endemic or sporadic form; its relation to the physical, biologic, or climatic features of the countries where it occurs, whether immunity or difference of susceptibility has been recognized, its symptoms, theories of causation and dissemination, and suggested treatment.

Certain insects should be investigated with especial care, particularly insects which come in contact with the blood of the patient, or the food or feces. Before transmission experiments are begun, it is necessary to know the normal conditions of life of the insect, its food, methods of reproduction and the proper conditions of the soil or water in which it is to be. The study of the causation of disease is receiving considerable attention today. It is to be hoped that the suggestions offered in this article may lead to greater effort in locating the possible intermediate hosts and invertebrate carriers.



Insect Transmission or Causation of Disease.

—Pierce, in a recent issue of *Science*, has stated that insects may be involved in disease transmission either by transmission of an organism or the inoculation of a toxin; or there may be an intermediate phase in the life cycle of an organism, the insect not coming in direct contact with the final host. Insects can carry bacteria, many types of protozoa and many species of parasitic worms. Insect toxins may be introduced into the system by means of the mouth, claw, caudal appendage, or ovipositor of the insect. Some insects live as parasites on the bodies of men and animals; sometimes insect larvae are ingested as food and continue to develop in the intestines or other organs, often at the expense of the tissues. Insects may obtain the organisms which cause disease directly from the blood of an infected host, from infected surfaces of the body, or from the excretions of an infected host. The organism may then be transmitted by the insect by direct inoculation thru the proboscis or by the passive transmission of the parasite in the reflex actions which take place in the sucking of blood; the organism may be regurgitated by the insect on the body of its host and obtain entrance by its own activity, or it may pass thru the insect and out in its feces, or in malpighian excretions. If the organism is taken up by the insect in its larval stage it may pass thru a number of insects before finding a vertebrate host.

Trench Mouth.—This condition, according to Merkeley (*Oral Health*, Aug., 1919) is well described by the designation as ulcerative interstitial gingivitis. A lack of oral hygiene is generally conceded as a contributing factor, and badly kept table utensils undoubtedly help in the distribution of the infection. Streptococci and a very few staphylococci have been found, as well as anaerobes in the form of the bacillus fusiformis and its spirochaete, said to be a spore form of the bacillus fusiformis. Certain other ultra-microscopic forms are regarded by the author as chiefly responsible. The infection spreads with great rapidity and then assumes a stubborn chronic character. The clinical picture presents a slough closely approximating in general appearance that of an arsenic necrosis. The floor of the mouth, tongue and cheeks are rarely involved, altho there is a considerable rise in temperature of the cheeks in acute exacerbations. There is also a general rise in temperature of a couple of degrees, due no doubt to the absorption of ptomaines and toxins. Pain may be severe enough to produce insomnia. The chief aim in the treatment being the removal of the cause and all contributing factors, the slough is best cleaned away by applying dry crystals of copper sulphate on a small pledget of cotton to each interproximal space where slough is present. The bactericidal application is allowed to remain three or four minutes, then

washed out with a water syringe, this treatment to be repeated daily for three or four days, or if pain be intense, twice daily. As a mouth-wash, undiluted Dakin's solution should be prescribed, with instructions to the patient to hold the solution in the mouth for some minutes and use the cheeks to forcibly wash out the interproximal spaces. When the pain has disappeared and the slough has been cast off, which should be in four to five days, a thoro examination should be made for all irritants and these should be removed even to the removal of all shell crowns and extraction of the third molars, if badly involved. It is noteworthy that the tissue flap covering a partially erupted third molar may form a pocket and thus become the seat of trouble. In fact, fifty per cent. of cases treated to date point to this origin. Treatment by irrigation and wash should be continued until granulation-tissue has a good start, then iodine and violet ray massage well may be employed, keeping up the Dakin solution as a mouth wash intermittently. The destroyed gingival tissue will slowly regenerate and give a fairly good effect even in extensive necrosis.

milk failed to cause its reappearance. The milk cure is formally indicated in cases with renal, cardiac, or hepatic disease or advanced arteriosclerosis, not only to dispel skin and gastrointestinal symptoms but to secure rapid reduction of glycosuria. Milk cures should also be used regularly as a corrective of the customary diet and are especially advisable in obese, gouty and bulimic cases.

Serum Treatment of Typhoid Fever.—In treating patients exclusively with antityphoid serum Rodet and Bonnamour (*Bulletin de l'Académie de médecine*, June 3, 1919) claim that the administration of serum should be begun as soon as possible, but should be employed even in patients received late, always producing at least some favorable effect. The first injection consists of fifteen or twenty mils. If a reduction in temperature follows within forty-eight hours, no further injection is given as long as defervescence continues. If, however, the reduction fails to occur or the temperature reascends, a second dose of ten to fifteen mils is given forty-eight hours later. The third dose is similarly regulated and consists of only five to ten mils. Generally, three injections suffice, frequently but two, and occasionally one. In a few instances, fourth and fifth injections at the usual two-day intervals are required. More frequently, serum is repeated for recrudescence or relapse after a more prolonged period of improvement. The serum acts both on the temperature and the symptoms. It never causes the immediate rise in temperature which often attends vaccine or colloid metal injections. Often the temperature shows a marked drop within twenty-four hours after the first injection. Even if it soon reascends a favorable prognosis is indicated, the temporary drop often being the forerunner of an early reduction by lysis. Sometimes the first injection is followed by a progressive, permanent effect on the temperature. Absence of effect on the temperature after three injections points to a different or superadded infective process. Toxic manifestations are reduced to a minimum by the treatment, which is contraindicated neither by hemorrhage nor an already grave condition of the patient.

The Treatment of Malaria.—Nocht (*Wiener medizinische Wochenschrift*, Feb. 22, 1919) gives a summary of his principles of treatment of paludism and considers also some other questions related to them, such as becoming accustomed to the drug, the mode of action of quinine (this is not a direct toxic for the plasmodium), the drawbacks of quinine treatment when too intense or when uselessly prolonged. Nocht follows the treatment outlined: Quinine is given for eight days in the daily quantity of one gram divided into three, four or even five doses, then a pause of four days, then three

Milk Diet in Diabetes Mellitus.—P. Le Noir (*Bulletin de l'Académie de médecine*, July 1, 1919) reports his experiences during past few years with brief "milk cures" in diabetes, either to overcome complications or severe symptoms, or for purposes of alteration with the customary protein and fat diet. The author believes even a mitigated protein fat diet has various drawbacks and in the long run may lead to harmful results in diabetics predisposed to visceral disease, arteriosclerosis, and often already suffering from gout and obesity. For temporary detoxication, therefore, he subjects his patients to five day cures in which the food taken is restricted to from two to three litres of milk—usually two and a half litres—given at equal but rather short intervals. Slight diminution of the body weight occurs, but hunger and lassitude are not marked. The milk cure is repeated at intervals dependent upon the severity of the disease, the tendency to visceral lesions or arterial changes, and the patient's willingness to undergo it. In the periods between milk cures the ordinary antidiabetic diet is ordered, avoiding unnecessary strictness as well as any excess of total intake. Among seventeen cases of "arthritic" diabetes of intermediate severity, without emaciation, four showed complete disappearance of glycosuria after the first "cure," the sugar reappearing only in traces or not at all for several months. In nine cases the sugar was markedly reduced, often by two-thirds or one-half, after each milk cure, while in four the measure was unsuccessful. In one instance the sugar output, already reduced from eighty to twelve grams by strict antidiabetic diet, fell to four grams under the milk diet. In another patient passing forty-nine grams, glycosuria disappeared, and 100 grams of saccharose given in three litres of

days of quinine, next a pause of four days. This is continued for six to eight weeks at the maximum. Intramuscular or intravenous injections of quinine only do away with the digestive disturbances and are only indicated when these arise. Arsenic preparations (salvarsan, neosalvarsan, etc) are to be resorted to as alternating drugs only. They are especially indicated when the young parasitic forms of the disease or febrile paroxysms occur during quinine treatment. Methylene blue and other drugs which have been proposed offer no advantages. From the viewpoint of prophylaxis, the writer is most interesting in his remarks. Prophylaxis is of value, especially from administrative and military aspects. It has the advantage of distributing the patients more uniformly, thus preventing massive and simultaneous contaminations. But the writer believes that subjects who have been given prophylactic treatment are very prone to suffer from aggravated forms of malaria and a prolongation of the disease if they eventually contract it.

Strychnine in Neurasthenia and Anxiety Neuroses.—The use of heroic doses of nux vomica and strychnine in nervous collapse is well enough known to neurologists, and recently Heckel in a monograph on neuroses of anxiety has recommended the alkaloid in those states as well, says an editorial writer in the *Med. Record* (Aug. 31, 1918). Hartenberg regards strychnine as almost a specific in the nervous asthenia of neurasthenia and gives it in increasing doses—always in excess of 6 milligrams (1/10 grain) daily dose. By reason of the fact that strychnine is not retained in the body certain individuals can acquire a tolerance of several centigrams a day. In anxious states this high dosage is not indicated and by the mouth a tenth of a grain daily dose need not be exceeded, while a fifteenth suffices by the hypodermic route. To give larger doses would very likely increase the severity of the anxious state. The remedy is indicated, according to Hartenberg, in secondary neurasthenia due to organic disease and wherever there is a somatic substratum. In endogenous cases with obsessions and phobias the results are less happy. When the drug is given *per os* it exerts an action on the digestive apparatus as shown by acceleration of the food passage. Given subcutaneously a nervous reaction soon follows and if this is in excess the patient is irritable and restless. To strike the ideal dose it is well to begin with a milligram by the mouth. On the ninth day Hartenberg would change to 2 milligrams in two daily doses, one on waking in the morning and the other during the day. One may or may not increase the dose further, but 3 mg. daily should not be exceeded. After three periods of treatment the patient should rest a fortnight, after which the treatment is begun again with daily doses of 2 mg., which may be gradually increased until benefit arrives or the limit is reached. If the digestive organs de-

mand it the alkaloid should be given *per os* in pill form.

Removal of Tonsils.—Tho many surgeons remove only tonsils that are a menace to their possessor, it is certainly true that several men (and particularly the young and enthusiastic just leaving special training) remove many harmless, innocent victims and believe in so doing they have removed the source of all ills. Faville (*Virginia Medical Monthly*, Sept., 1919) states that most modern surgeons are in accord with an eminent New York specialist in his summary of a paper on the subject written over four years ago in which he says:

1. That the tonsils have a definite function in early childhood.
2. That tonsils should not be removed unless there is some especial indication before four years of age.
3. That small, buried tonsils associated with enlarged cervical glands should always be completely removed unless some other definite cause is found for the condition.
4. That tuberculosis is often found to be of tonsillar origin.
5. That one of the most important points to be considered in judging whether a tonsil should be removed or not, is the size of that tonsil in relation to the individual throat.
6. All tonsils, large or small, which seriously interfere with respiration should be removed.
7. That many local pathologic conditions are caused by diseased tonsils.
8. That many cases of middle ear catarrh could be prevented by removal of the tonsils.
9. That there is a distinct relationship between the tonsils and many general diseases.
10. And, finally, that the promiscuous removal of the tonsils of children, without the finding of some associated pathologic condition, is pernicious; and that all cases demanding operative interference should be carefully selected.

Treatment of Whooping Cough.—Barilaro (*Revista del Instituto Bacteriologico*, Aug., 1918) gives a report of his various experiences in treating whooping cough with the patient's own sputum, or with asthma sputum, with an autovaccine, with sputum from healthy persons, and with various preparations. Charts are given showing the abrupt drop in the number of paroxysms after injection of an autovaccine or a preparation made from the patient's sputum. The latter is generally called Kraus' antitoxina. One young man with violent paroxysms and vomiting, the tenth day of the disease, was improved by a single injection of autovaccine, no vomiting occurring thereafter. The second injection two days later was followed by a drop from twenty to eight paroxysms a day, all immeasurably milder, in less than a week. A young woman with whooping cough for a month was given two injections of 5 c. c. of a preparation from whooping cough sputum, and in a

week the paroxysms had dropped from twenty-eight to nine, much less severe. No effect was apparent in some cases, but on the whole, Barilari extols this antitosina method as efficient. The sputum for the antitosina must be from persons who have not previously been treated with it. The cough loosens up and becomes less spasmodic and vomiting ceases. Thirteen charts are given; they demonstrate the superior efficacy of this whooping cough sputum therapy, at least over the other substances tested.

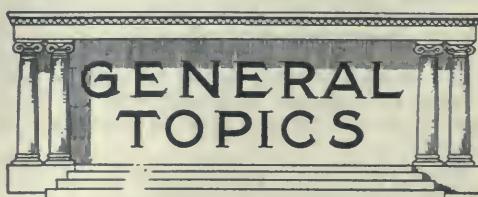
Management of Acute Anterior Gonorrhea.—There are such wide variations in the reported results of treatment of acute anterior gonorrhea in the male with the various silver preparations at our disposal, that a study of the elements which combine to give success, the causes of failure and an attempt to standardize a treatment offering the strongest hope of good results seems pertinent. Adams (*N. Y. Med. Jour.*, Oct., 1918) claims that only freshly prepared solutions of argyrol made directly from the crystals, employing a strength of ten per cent. to fifteen per cent., should be used. No injections should be entrusted to the patient for personal use as long as discharge or cloudy urine is present. All the prepared solution the anterior canal will hold without distress should then be slowly injected with a plunger or bulb urethral syringe, as the patient is lying on his back, after he has urinated and the glans has been cleansed—care being taken that the urethral folds are fully distended. Two drams to half an ounce is the quantity required. Then the meatus should be gently but firmly closed with the fingers and the injection retained in the canal for twelve to fifteen minutes, afterward being allowed to flow into cotton or other waste. The meatus should be covered with dressing until the next urination, to protect the clothes from being stained. Such injections should be used once daily, the classic restrictions in diet and activity ordered, giving internally only sufficient favorite medication to render the urine neutral or faintly alkaline. This routine should be continued for two or three days after the disappearance of discharge and free pus in the urine, as indicated by the appearance of the first urine in the two glass test.

It is well to consider the pathologic condition of the canal at this time. It is incontestable that upon the appearance of pus at the meatus gonococci are present in intercellular spaces—possibly in the submucosa in some portion of the canal. Injections do not kill these bacteria. There is also a greater or lesser area of desquamated mucosa—ulcerated area—if that term is preferred, and possibly deep infection of some of the mucous follicles or glands of Littré. The plan for treatment of such a condition must be directed toward two aims: 1. To prevent reinfection of the canal from gonococci in the tissues and, 2, to assist in reforming the mucosa destroyed. This is the time for mildly

stimulant medication and injections. Now may be used, with cautious introduction, sandalwood oil or the balsams. The patient may be entrusted with a mild injection of protargol, one quarter per cent. (five grains of protargol in four ounces of solution), to be used one to three times daily and retained for ten minutes. The fact should be borne in mind that the margin between mild stimulation and irritation is narrow; and symptoms of overtreatment should be looked for, *i. e.*, first a return of cloudy urine, and later, discharge. If no such symptoms appear, the protargol may be doubled in strength; but that should be the limit.

Then the more frankly astringent agents may be employed in the reverse order of their irritating qualities: zinc sulphate up to one grain to the ounce; lead oxide up to one grain to the ounce; zinc and lead combined to the same strength; zinc permanganate up to one grain in four ounces; nitrate of silver from one grain in two ounces up to two grains in one ounce. In no case should nitrate of silver be injected oftener than once in four days. The other solutions may be used daily or every other day. Should shreds and flakes persist in the third week of treatment, in a patient responding promptly and progressing without reinfection, it is almost positively an indication of deep involvement of some of the mucous follicles. Here again injections and internal medication are valueless except for prophylaxis against reinfection, the anterior endoscope offering the only efficient means of attack.

Patients should be under observation for a total period of from five to six weeks and the urine free from flakes and shreds before discharge. After such a period it can be safely assumed that the virulence of gonococci in the submucosa is spent and that they are safely buried, except in the event of most severe traumatism which is not of frequent occurrence. So potent is the assistance given patients by the treatment outlined that a reinfection caused by the thoughtless drinking of beer five days after institution of treatment has subsided and clear urine again been passed twenty-four hours after the injection following the reinfection.



How to Make Water Safe.—An editorial writer in the *Critic and Guide* calls attention to the fact that sparkling clear water is more apt to be a disease carrier than grossly contaminated water, for the reason that all surface waters are more or less subject to dangerous in-

fection. Typhoid bacilli may live thirty days in water of ordinary temperature and much longer in colder waters. Boiled water is the safest when boiling is practicable. When boiling is not feasible, tincture of iodine, three drops to the quart of clear water is an efficient bactericide. If the water is cloudy or contains much sediment, six drops should be used per quart, or enough to produce a very faint brownish discoloration. After the iodine has acted for fifteen minutes, a pinch of ordinary photographic "hypo" (sodium thiosulphate) clears the water and removes the last traces of iodine. The fifteen minute interval is important and also the brown color. In this strength there is no disadvantage from the chemicals used.

Obligation of the Physician to the Public Health.—The physician's obligation to society should induce him to apply his special knowledge to the study of community health problems and make himself one of the leaders in the inauguration of measures to promote public health and welfare, states Rupert Blue in the May issue *Modern Medicine*.

To do this he must maintain active contact with the agencies engaged in the promotion of health and welfare; keep informed regarding recent important activities and achievements in the field of public health and state medicine; interest himself in the interrelation of health and social and economic conditions; and cultivate a broader outlook on the relation of medicine to public health and welfare; constitute himself a health educator, always to his patients, and as occasion offers, to the community; seek to discover the causative factors in disease and direct attention to their correction or removal; cooperate whole-heartedly with the health authorities by promptly reporting all births and deaths and all cases of notifiable disease; by assisting in the maintenance of quarantine, by promoting preventive measures for the control of disease, and by utilizing the diagnostic laboratory facilities and specific therapeutic agents offered by the health authorities.

It is almost inexcusable for a physician to be ignorant of the sanitary condition of his community. With the extensive social and economic adjustments now going on thruout the world, the time has come for physicians generally to take a more active interest in determining the relation of medicine to the public health and welfare. Let each physician ask himself:

Do I fully instruct patients in controlling the spread of communicable disease?

Do I stimulate the people of my community to initiate community health work?

Do I always seek to discover the underlying social and economic causes of patients' illnesses?

Do I place self-interest above community welfare by failing to report communicable diseases to the health officer?

Do I strive to keep public health matters out of partisan politics? Do I keep abreast of progress in public health?

If not, why not?

Food Value of Meat.—Nies, who is associate editor of the *Hotel Gazette*, says in a recent issue of *N. Y. Med. Journal* that there are a thousand and one dishes of which each one is in itself a well balanced meal, and in addition is appetizing and nourishing. They can, even at the present high costs, be prepared for a reasonable price. They are made by a combination of a small portion of meat with a larger quantity of grain, cereal, or other farinaceous substances or vegetables. They are flavored from their essential ingredients so that their preparation requires no high order of culinary skill. With a judicious use of the ordinary fireless cooker they can be prepared in the morning, put in the cooker and taken out ready to serve when the family returns in the evening; thus releasing poor women from the bondage of the cook stove and, in addition, providing the family with better food than could be prepared by the old hurry-up way, which is so wasteful of material, and consumes so much time. These dishes are prepared so that all the substance of each ingredient is conserved for consumption. The shrinkage instead of evaporating into the air is absorbed by the parts of the combination and saved to the consumer. The pleasure which is derived from eating is established first by sight, second by taste and smell, and lastly by the feeling of satisfaction after eating which brings with its relaxation of mind and body. If food can be so prepared that it brings about all these things, and that with the homely means at the command of every housewife, much can be saved by thus abolishing the necessity of dining at restaurants and spending money which economized, purchases many better and perhaps more needed things. Stews largely composed of potatoes and various vegetables with only enough meat used to flavor them are better than meat stews. Potatoes cooked à la Boulangère with bacon, and sliced onions constitute a meal in themselves. A small part of meat or fish will give relish or flavor to the satisfying and nourishing cereal. The farinaceous or vegetable dinner will save money and health.

Pregnancy and Childbirth Among Siberian Aborigines.—Miss M. A. Czaplicka, a Russian lady who lived for some years in Siberia among the primitive people, according to a writer in the *London Lancet* (Aug. 10, 1919), has shed a good deal of light on the mode of life, habits, customs and superstitious practices in a book entitled "Aboriginal Siberia, a Study in Social Anthropology" (Clarendon Press. 14s. net). Among other things she has collected data relating to pregnancy and childbirth, some of the more interesting of which are here given with names of the tribes concerned:—

The Kamchadal.—According to Krasheninnikoff, an eighteenth-century traveler, a woman gave birth to a child kneeling and in the presence of all the villagers without regard to sex or age. The newly-born child was wiped with and wrapped in a species of grass called *tou-chitch*; a stone knife was used to cut the umbilical cord, and the placenta was thrown to the dogs. A woman who wished to become pregnant had to eat spiders; some women for this purpose would eat the umbilical cord together with a grass called *kiperi*. On the other hand, if a child was not desired there was a widespread custom of causing abortion by shock, or by killing *in utero*. The old women "specialists" who carried out the operation frequently caused the death of the mother. In order to induce sterility concoctions made from certain grasses were taken.

The Yukaghir.—All cases of childbirth among the Yukaghir were very difficult, and the barbarous practices attendant on them produced nervous diseases and premature age in the mothers. The foundation of these practices is the belief that difficult labor and unfortunate birth are caused by the entry of an evil spirit into the woman. Difficult labor is also attributed either to the failure of the mother to observe certain taboos or to the ill-will of the child itself. Therefore, two pregnant women are not allowed to live in the same house in case the two unborn children should communicate and decide which mother should die. Sometimes the husband helps his wife who is in difficult labor by placing his arm around her abdomen. The taboos connected with childbirth affect not only the mother, but also the rest of the household. Some of these taboos are: the pregnant woman must not eat the fat of the cow or reindeer, or larch-gum, as these things are believed to "freeze" or thicken in the stomach and to fasten the child to the inside of the uterus; but butter of the cow or horse's fat may be eaten. She ought not only to be active and energetic during the puerperium, but ought, in walking, to raise her feet high and also to kick away stones or lumps of earth in her path, thus symbolizing the removal of obstructions at childbirth. At the first attack of labor-pains not only the wife, but the husband and midwife, must loosen all their garments, so that the child may not be hampered in any way.

The Chukhee.—This tribe is one of the most prolific in Northeast Asia, and the women are delivered with little trouble. Custom forbids the mother receiving any help at childbirth—help may only be given in cases of absolute necessity. She must not groan, and has to attend to her own needs as well as to those of the new-born infant. She cuts the cord (with a stone skin-scraper) and pulls away the placenta. Accordingly, a large pelvis—because it eases delivery—is considered one of the chief features of womanly beauty.

The Gilyak.—The Gilyak woman never dares to give birth to a child at home; she must, in spite of the severity of the weather, go out of the hut for this purpose. In the late fall or winter a special hut is built for the woman, but

it is a very uncomfortable affair, so that mother and child suffer from exposure to cold and wind. To help the woman in labor a wooden figure is carved, representing a woman in the act of delivery, and to it are sacrificed different kinds of foods, with a view to placate the evil influences which are at work. Special knives are used to cut the cord. The woman returns home on the eighth or ninth day. A woman who wishes to have a child wears various amulets, such as a dog's tooth, etc.

The Buryat.—Among the Buryat of Alarsk during delivery the women of the family are gathered near the mother and take the child and drop it in a horizontal position on the floor, which has been made soft for the purpose, after which it is washed and wrapped up. Two or three days later a feast is held at which the ceremony of wrapping up the child begins: A boy or girl present is chosen to reply to questions put by a temporary "mother," who holds in her hands an arrow and a right haunch of bone of an animal. After the questions have been asked and answered three times a name is given to the child. The feast ends with the making of a fire in the place where the birth occurred; the guests, including the father, surround the fire and squirt into it from their mouths a mixture made from meal and oil, all in one voice exclaiming "Give more happiness! Give a son!"—repeated three times. General excitement prevails and they vie with each other in smearing their friends' faces and clothes with oil, ashes and fresh animal excrement.

The Yakut.—Yakut marriages are generally fruitful, averaging ten children to one woman, but becoming less so towards the northern districts, altho the Yakut are everywhere more prolific than the Tungus. The lack of children is ascribed solely to the woman. According to the explorer Jochelson, women from the north have very difficult delivery. The Yakut regard the pangs of childbirth as sickness caused by evil spirits, and therefore if the assistance of a midwife or the goddess of fertility, Ayisit, is of no avail, a shaman is called in to fight the spirit. A Yakut woman is always delivered on the bare earth, for the Yakut believe that the "earth-soul" is communicated to the infant from the earth at the moment of birth. No consideration is shown to mother or child, for women possessed of evil spirits are regarded as no less perilous to society than those infected with epidemic disease. This accounts for the cruelty manifested by the Yakut towards women suffering the pains of labor. Cases have been known where the woman has died as a result of such cruelty. To hasten delivery two posts are driven into the ground and a third one is fastened across the top of them. The woman kneels and places her arms over the cross-piece far enough to bring the latter under the armpits. One man from behind holds her shoulders and another in front holds her hands to prevent any possibility of her resisting the operations of the midwife. The latter kneels in front of the patient and presses upon her abdomen, at the same time imploring the aid of the benevolent goddess, Ayisit, who is believed to

be present at childbirth and to assist the patient. Certain food taboos are observed before childbirth: the expectant mother must eat neither swan's flesh nor wild birds' eggs, because the child might otherwise be deaf and imbecile.

The customs collected by Miss Czaplicka are found among aborigines more or less all over the world. The custom mentioned as existing among the Yukaghirs of the spectators loosening their garments is in one form or other very old. It was a belief of ancient Roman and Greek folklore that the goddess of delivery, Lucina or Ilithyia, could hinder delivery according to the attitude which she took up, a belief referred to by Herrick, who says, "At thy birth Lucina cross-legged sat."

Bureau of Education to collect information regarding feeble-minded children and for a mental laboratory to determine standards. A psycho-educational clinic is also provided. The sum of \$30,000 annually for the maintenance of this bureau is appropriated. A director is to be appointed at a salary of \$4,500.

The Care and Treatment of Drug Addicts.—A measure appropriating a total of \$5,000,000 for federal assistance to the state health agencies for caring for and treating drug addicts has been introduced by Senator Joseph I. France, chairman of the Senate Committee on Sanitation and Public Health. The Secretary of the Treasury is authorized to divide the appropriation among the states, to be payable only if the respective states by official or private subscription raise a similar amount. The sum of \$3,000,000 is authorized to be expended before July 1, 1920, and \$2,000,000 is made available for the following year. One-fifth of this amount may be expended to collect and spread information regarding the care and treatment of drug addicts. Any hospital equipment held by the army and navy which is not in use is to be transferred to the Treasury Department for the use of drug addicts. The Secretary of the Treasury is charged with the enforcement of the act.



NEWS NOTES AND ANNOUNCEMENTS

American Students in French Universities.—More than 5,000 American officers and private soldiers have pursued courses in French universities during the past few months. The American soldier-students have recently given expression, in a delicate manner, of their gratitude to their French instructors. They have raised by subscription among their number more than 70,000 francs. This sum is to be divided among the fourteen French universities that have received American students. At the opening of school in the fall, fourteen French students sailed for the United States, where they will pursue a course of study for a year at some American university.

Europe Lacks Soap.—Europe is menaced by a lack of soap, according to the *London New Statesman*. Lack of soap and of its aid to cleanliness is said to be the main cause, after underfeeding, of the appalling death rate from disease in Central Europe generally. Typhoid, typhus, dysentery, scurvy and tuberculosis have increased in Austria, Hungary, Poland, Bohemia, Russia and Germany, and these diseases cannot be fought successfully because of lack of disinfectants, linen and soap.

French and American Physicians.—It has been announced in *Le Temps* that an organization has been formed for the purpose of establishing permanent relations between American and French physicians and surgeons. Commissions have been appointed to take charge of the establishment of a course of teaching for American physicians visiting France, to found a bureau of information and to examine into means of organizing an exchange of articles on medical and surgical subjects between the journals of the United States and France.

Fighting Typhus in Serbia.—The American Red Cross has appropriated \$65,000 to enable the American Women's Hospital Association to send a mobile hospital unit to Serbia for relief work in connection with typhus and other epidemics. Of this amount \$25,000 is a cash donation, the balance representing supplies to be provided from existing stocks in Europe.

The Women's Contributions.—Surgical dressings to the number of 300,896,071 and valued at \$13,922,292 have been turned out by the volunteer women workers in Red Cross Chapters in the United States during the eighteen months preceding January, 1919. They also produced 29,422,390 hospital garments and supplies, valued at \$26,818,943. The total value of the work of the 8,000,000 women volunteers is placed at \$81,499,997.

Legislation for Study of Mentally Defective.—The study of feeble-minded, backward and otherwise mentally handicapped school children by the Bureau of Education is provided for in a bill introduced by Congressman L. C. Dyer of Missouri. (H. R. 8479.) The measure provides for the establishment of a new bureau in the

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Two New Organisms.—The necessity for discovering the etiologic factors of disease as the basis of rational prophylaxis and therapeutics is constantly being emphasized; and the growth in our knowledge of the causation of disease is due largely to the impetus growing out of this need. Within the past generation the bacterial origin of disease has been developed more completely than during any century since the beginning of time. The foundation studies of Pasteur and Koch have been built upon by numerous investigators who have succeeded in unraveling many of the secrets of affliction, thus making possible a stronger defence of mankind against bacterial invasion.

Recently Surgeon Edward Francis, of the United Public Health Service, has determined the *bacterium tularensis*, first isolated by McCoy and Chapin, as the causative agent of "deer-fly fever." This condition is not widely spread and practically all of the cases reported have occurred in Utah, most particularly in Millard County.

The disease itself is comparatively new, the first fatal case having been noted in 1919, tho its existence has been known since 1917. As far as is known the infection develops from a fly bite, as the result of which neighboring lymph glands become swollen and inflamed and usually suppurate. A fever of a septic type ensues, lasting from three to six weeks. The symp-

toms appear to be most severe and threatening, the prognosis is favorable.

It is probable that the *bacterium tularensis* is spread thru the medium of rodents in which it causes a plague-like disease. Information is still lacking as to the mode of communication to human beings, nor is there knowledge concerning the degree to which "deer-fly fever" exists in other sections of the country.

The relation of insects to the spread of disease is assuming increased importance. The fly, the mosquito, the body louse and the tsetse-fly are responsible for tremendous losses in life and for even greater amounts of invalidity and social and economic distress.

The rôle of the mosquito in the causation of malaria and yellow fever is well known. While discovery of the plasmodium gave complete information regarding the etiology of malaria, the mode of transmission was not determined until many years later. In the case of yellow fever, however, the growth of knowledge has been reversed and the Stegomyia has long been held guilty as the disseminating agent of the readily controllable disease. The actual invading agent has eluded the laboratory workers for many years, altho several organisms have been described as the responsible cause of the disease. Recently Noguchi has recovered an organism to which has been given the name *leptospira ictericina*.

roides, which promises to satisfy all of Koch's postulates. If this new organism, upon further investigation, proves to be the actual origin of yellow fever, the possibility of a vaccinal treatment will add to our method of cure. Under these circumstances the entire life history of yellow fever, considered as an epidemic, will have been worked out successfully and another preventable disease will be placed with greater definiteness in the category of curable diseases.

The far-reaching importance of the discovery of new microorganisms is attested in the prompt application of present day knowledge concerning active and passive immunity in securing a mastery over the agencies of disease. The greatest developments of the past decade have been based upon the knowledge of the habits, method of growth and dissemination of microscopic animals and plants pathogenic to man.

The magnificent results of medicine in connection with warfare, may be attributed to the patient researches of innumerable workers, whose enthusiasm and interests have led them to find man's invisible foes. From the assault upon tuberculosis to the victory over trench fever, the leaders have been those wielders of test tubes and Petri plates, versed in the law of bacteriology, serology and immunology. The accomplishments of present day discoverers are due to the progressive advances of laboratory science and their prompt testing in clinical medicine. Francis and Noguchi achieve the triumphs of discovery by virtue of their own capabilities and their successful building upon the accumulated data of the past generation. Their work, however, will be tested in the realm of general experience and their revelations will become valuable thru the observations and controlled applications of the medical profession.

A Ministry of Health.—On July 1, 1919, the English Ministry of Health Act went into effect. The first Minister of Health is Dr. Christopher Addison, who brings to the office a vast amount of experience gleaned from service in high office. He has served as a Parliamentary Secretary of the Board of Education and the Board of Munitions. Since 1917 he has acted as Minister in charge of Reconstruction. In addition his medical training has had a wide scope of effectiveness as a lecturer, a writer, a publicist and teacher. By training and the practical test of experience he is adequately fitted to assume the important duties with which he is now charged.

The general powers of the Minister of Health are thus defined in the Act as printed in *Public Health Reports*, October 10, 1919. "It shall be the duty of the Minister, in the exercise and performance of any powers and duties transferred to or conferred upon him by or in pursuance of this Act, to take all such steps as may be desirable to secure the preparation, effective carrying out and coordination of measures conducive to the health of the people, including measures for the prevention and cure of diseases, the avoidance of fraud in connection with alleged remedies therefor, the treatment of physical and mental defects, the treatment and care of the blind, the initiation and direction of research, the collection, preparation, publication and dissemination of information and statistics relating thereto and the training of persons for health services."

The significance of the new Ministry of Health may be appreciated from the fact that there are transferred to it all the powers and duties of the Local Government Board, the Insurance Commissioners and the powers of the Board of Education, with respect to attending to the health of ex-

pectant mothers, nurslings and children under the school age, as well as medical inspection of school children. He is charged with the administration of the Midwives Acts and the Children's Act of 1908. His jurisdiction includes also Wales and Ireland.

This step in the unification of medical functions under national auspices is the most important administrative step that has been taken in many years. Its importance cannot be overestimated and the results to be attained will justify its existence. The value of nationalization of procedure under a single administrative head is recognized in the United States, where health functions are so widely distributed among the various states and several departments of the government.

There has been considerable agitation for the establishment of a Federal Department of Health, with a Secretary in the Cabinet, but this seems to be remote, insofar as its accomplishment is concerned. The necessity for a Cabinet officer is not on a parity with a necessity for a single effective administrative organization to inaugurate, supervise and control the administrative measures suitable for the maintenance and protection of public health.

At the present time various health functions are distributed among the departments of the Treasury, Interior, Labor and Agriculture, together with the unusual power granted to the War Department, the Navy and, indeed, to the Interstate Commerce Commission and Congress itself. Added to these diverse departmental influences are the numerous powers and duties of the State Departments of Health thruout the country. It is patent to any administrator that complete harmony cannot be secured without the establishment of a consolidated

department to deal with the problem of health.

Public health in the United States has made remarkable progress, but its fullest development is hampered by reason of the divided responsibility manifest in health administration thru all too numerous channels. The English government has set an example in administration which merits the flattery of imitation. The United States needs a unified ministry of health under national auspices.

Whether the United States Public Health Service should be expanded so as to become the center of national health functions is worthy of investigation and consideration. Its peculiar position of activity during epidemics and calamities has resulted in wealth of confidence in its ability, sanity and thoroness. The general public believes in it and trusts it implicitly. The wide range of activities entrusted to it is indicative of its potentiality for larger service.

As Lee K. Frankel, President of the American Public Health Association, properly suggests, it is time that steps were taken to build up a coordinated and harmonized health organization for the country. Thus only can there be avoided the waste in effort, money and effects that are constantly handicapping public health service.

If there is no place for a Minister of Health, there is ample need for an administration of health activities by a single organization that will reach and affect every portion of the United States.

A Promising Gift.—The General Educational Board of the Rockefeller Founda-

tion has announced a gift of twenty million dollars, the income of which is "To be currently used, and the entire principal to be distributed within fifty years, for the improvement of medical education in the United States."

The purpose of the fund is to build up worthy medical schools by improving their clinical resources, raising salaries and making such provision as may be necessary to raise the standard of medical education in this country. The effectiveness of this gift will be reflected in the improvement in educational facilities and in the type of physicians to be developed by means of it.

A war experience pointed out numerous short-comings in our medical education and created numerous standards for evaluating our traditional system of medical training. The necessity of securing an ample supply of highly trained and efficient physicians capable of coping with problems of public health and sanitation, revealed some degree of our weakness. Public health work has been advancing particularly in attacking epidemic diseases, tuberculosis, cancer, mental diseases, industrial and occupational diseases, but none the less medical schools have given inadequate attention to these fields of medicine to provide a sufficient corps of trained workers. It is for this reason that one finds an increased interest in medical problems on the part of social workers, nurses, psychologists, engineers and sanitarians.

The fact that large portions of the public health field will be split off from the general fold of medicine unless medical colleges make the necessary alterations in the curriculum to provide capable men and women, trained to take up those phases of public health, claims increasing attention.

The sociologic aspects of medicine may not appeal to the profession at large, but the possibilities of growth and development in this direction are far greater than have been appreciated. If the medical profession rejects its present growing opportunities it will be because of the failure of our medical institutions to appreciate the problems of the future or their unwillingness to alter their present plans so as to adapt their educational methods and subject matter to the demands of the coming generation.

It is to be hoped that the vision which gave rise to the gift of twenty million dollars will affect those responsible for the advancement of medical education. If grants are made to institutions that will widen the calibre of their training and will organize their teaching staff on the basis of full-time professorships, with full clinical opportunities, and daily contact with living problems, it is safe to say that the educational conscience will be stimulated in no uncertain way.

The Carnegie Foundation for the Advancement of Teaching, in its reports on medical education conferred untold benefits upon our colleges and led to numerous reconstructions and gains in medical education. The Rockefeller Foundation has similarly given the profession and the public the benefit of its advice, counsel and example in various ways. One need but refer to its accomplishments in attacking hook-worm, tuberculosis; its efforts in behalf of social hygiene and mental hygiene; its assistance to medical colleges in Baltimore and St. Louis, and its organization of a modern medical plant in China, as well as its establishment of that most excellent Research Laboratory, the Rockefeller Institute. With the support and cooperation of these large Foundations, medical practice

and research have received a tremendous impetus. This fact is but another evidence of the intelligent recognition of the fundamental value of sound medical training, as a pre-requisite for a high standard of medical practice.

The gift has been made, but its results belong to the future. The main element in its widest usefulness lies in the broadening of the sympathies and understanding of our medical colleges with the aims and purposes of the medicine of the future. There may be fewer institutions, but they will be of a grade commensurate with the seriousness, dignity and responsibility of modern medicine.

Vocational Re-education.—Thru the passage of the Smith-Bankhead Bill a partial enactment for the relief of persons disabled in industry or otherwise has been effected. This legislation provides for an extension of the facilities offered to war cripples to secure vocational retraining so that equal opportunities may be granted all those maimed in industrial life. The permanent casualties of each year exceed eleven thousand persons, and their potential value to the community has been neglected because of the lack of system and organization designed to rehabilitate them to their maximum powers. The gain to communities thru the direction of efforts to increase the fitness of the handicapped workers is reflected not merely in economic benefits, but in terms of improved health, renewed vitality, greater nervous stability and a higher degree of health morale.

Under the terms of the bill, as passed by Congress, it is necessary that individual states provide dollar for dollar, the money

granted by the Federal Government for the benefits of the industrial cripples. The full effect of the new legislation, therefore, depends upon state ratification of the federal scheme thru supplementary legislation. It is to be hoped that the necessary action will be taken and that vigorous leadership will assert itself, that promptness may be ensured.

There is always a danger that reparative legislation will interfere with constructive policies, seeking to decrease the necessity of money grants. Re-education is not a substitute for accident prevention. Vocational retraining cannot take the place of workmen's compensation laws, nor can it serve as an argument against the need for health insurance. The very existence of legislation of this character should serve as a financial argument for the more complete installation of safety devices in industry and the establishment of wise schemes for the increasing of industrial safety. The ability to use the left hand cannot compensate for the loss of the right hand. It is undoubtedly true that the human factor cannot be removed by legislation, and in consequence accidents will continue while men work. Because of this new possibility of restoring the handicapped to positions of independence and self-sustenance, it represents a gain to social action.

The functions of hospitals in securing the complete restoration of those cared for by reason of injuries should include not merely physical restoration to health, but functional restoration. Hitherto resources and facilities have been inadequate, but under the new law their efforts may be properly supplemented to accomplish the desired results. For this reason the interest of physicians, particularly industrial physicians, should be enlisted to the end

that state laws may be enacted to make possible in every state the application of the provision for vocational rehabilitation with state and federal assistance. Recognizing the importance of this measure the medical profession, thru its county and state societies, might well adopt resolutions calling upon their respective legislatures to facilitate the passage of the law, making possible this wider plan of educational re-education in the interest of social, moral, economic and physical health.

State Health Centers.—H. Chamberlin in *Modern Medicine*, October, 1919, discusses The University of Iowa as the State Medical Center. According to his description the University Hospital has become the health center for the entire state. A Child Welfare Research Station, a Dental Infirmary and a Bacteriological Station are included in this center for the purpose of investigation into and the application of the various principles essential for the rational development of preventive and curative medicine. Under the state law indigent patients are accepted at the hospital and cared for at the expense of the state. The faculty of the medical college serves as the medium of extending health education among the people of the state, thru personal efforts and the use of pamphlets and bulletins. Particular effort is to be devoted to rural sanitation and hygiene, with emphasis upon the prenatal care of the mothers, the nutrition of children, the correction of deformities and the stimulation of education.

This step in the utilization of large and established medical institutions under state auspices is a distinct advance in health ad-

ministration. Every state hospital might well become a center from which a variety of attacks could be made upon communal health problems. Colleges which exist by reason of state charters, should serve the entire state as well as satisfy local needs or provide a place of training for a limited number of individuals. State Agricultural Colleges have set a pattern as to the manner and extent to which facilities may be afforded to all sections of a state.

Recent developments in health methods, worked out particularly in connection with conditions that arose during the war, have demonstrated the possibilities and advantages of a far richer organization for the control and supervision of conditions hostile to public health. The use of mobile ambulance units, traveling dispensaries, itinerant lecturers and health councils have justified their further employment in connection with the establishment of fixed centers for health activities. With the increasing employment of public health nurses and the improvement of transportation facilities, it is possible to make the hospitals function more vigorously and more effectively than has been the practice of the past.

With a full time teaching staff in our medical colleges, possessing their own hospitals, there is a wealth of opportunity for raising the educational standards of the state, so as to provide for a higher degree of intelligence upon the problems of health. If to this possibility be added a system for bringing into contact with hospital facilities the large number of persons having need of them, a tremendous gain will have been achieved.

The form of organization employed in military work, based upon Base Hospitals, Evacuation Hospitals and First Aid Sta-

tions, supplies a type readily adaptable to the peace needs of medical administration in times of ordinary living. There has been much loss of effectiveness and much wastefulness and extravagance due to the failure to coordinate hospital and dispensary facilities in one harmonious plan. Some sections of a state will abound in hospitals, while large areas are lacking in essential and necessary aids to medical welfare. Certain diseases are amply provided for, while other conditions are woefully lacking in the requisite facilities for their care and control. Emergencies are provided for under private auspices in many industries, while other industries employing fewer workers are lamentably weak in provisions for emergent cases.

The development of group diagnosis, specialized clinics, health classes, convalescent homes, and the growing emphasis placed on mental hygiene, occupational therapy and vocational re-education indicate a portion of the newer developments in public health medicine, requiring coordination and unification in order to achieve the maximum benefits.

If state institutions could serve as the basic centers, around which might be organized all health movements, an incalculable gain would be affected. A single scheme or program is becoming imperative. Whether the Iowa plan is the one best fitted to effect the needs of the various states or not, is a question for further investigation. It is highly suggestive, however, and commends itself to all interested in improving the health and welfare of the country. Organization along this line would in no wise interfere with the growth of a further centralization of public health affairs, while it would offer a splendid opportunity for

the stabilizing of preventive methods and of perfecting them for the greater advantage of urban and rural population, regardless of distinctions or social and economic status.

Infant Mortality and the Social Status.

—Knowledge concerning the causes of infant mortality continues to increase and additional data appear to corroborate the importance of an adequate income as a factor in lowering the infant mortality rate. The recent *Bulletin of the Children's Bureau (Publication, No. 52)* deals with infant mortality, considered in the light of an investigation of the births during one year in Saginaw, Michigan. This study is of particular interest because the families included had a higher economic status than those in other cities studied and reported upon by the Bureau. Three-quarters of the population were native and there were few recent immigrants among the foreign born residents.

The births during the year ending November 30, 1913, formed the basis for the study, thus making the period one uninfluenced by the effects of war, or the congestion or pressure incident to military and industrial changes. The mortality rate of 84.6 was comparatively low, tho there were marked variations between the section of the city with good sanitation and high economic standard of the residents, as compared with a less fortunate area. For example, the rate on the east side was only 67.5 compared with 106.2 for the west side.

Three-quarters of the births studied were to native mothers and the infant mortality rate was only 70.5, while for the infants of foreign mothers it was 127.6. Of the

total births 92.6 per cent. were to English-speaking mothers.

The mortality rate among breast fed infants was approximately one-half the rate that was found among artificially fed infants. This, of course, is a constant finding in every investigation of this character. The economic influences are particularly noticeable in the consideration of the fathers' earnings. The highest mortality rate, 179.5, was found among the infants whose fathers were in the lowest earnings group, \$450. There is a marked contrast in the infant death rate for the group of births in families where the father earned under \$850 (116.4), and the group where the paternal earnings were over \$850 (33.9). This fact is of importance in studying the problems of nativity, because a larger proportion of the infants of foreign born mothers were in the low earnings group.

It is significant insofar as treatment is concerned, that over one-half of the infant mortality consisted of still births and deaths under two weeks of age. Prenatal causes were responsible for over two-thirds of the total infant deaths.

The Urgent Necessity for Birth Registration.—The conclusions of the investigators emphasize the necessity for complete and prompt birth registration, the introduction of adequate prenatal care and the extension of instructive public health nursing during pregnancy, the puerperium and infancy. The local problems involve an improvement of municipal sanitation as applied to the water and milk supply, the collection and disposal of refuse and garbage, an improved housing code and the abolition of yard privies, except in the distinctly rural sections. Attention is drawn to the necessity for a well paid, full time health

officer, supported by a sufficiently large health corps of full time assistants with adequate compensation.

It is patent that the suggestions are by no means radical and simply include those measures which experience has demonstrated to be effective in bettering the physical environment of the people and of assisting in combating ignorance. It is interesting to note that the bulk of the mortality was due to prenatal care as of the maximum importance in counteracting this large part of the infant death rate.

There is a question for investigation in the fact that still births were proportionately far more numerous among foreign born mothers, than among native mothers, while the general infant mortality rate was forty per cent. lower among the children of native mothers than of foreign born mothers. It is equally striking that the infant mortality rate in families who own their homes was considerably lower than in the families where the homes were not owned. The industrial problem evidences itself in the fact that the infant mortality rate was only 74.6 when the mother was not employed in gainful work during the year following the birth of her infant as compared with the rate of 154.5 of infants whose mothers worked during the year following their birth.

There was evident no relation between still births and the earnings of the father, tho there was a marked decrease in the infant mortality rate as the income advanced. The extremes are found in the infant mortality rate of 179.5 for the income group earning under \$450, and only 22.2 for the income group earning \$1,250 and over.

Here again is obvious the influence of poverty with all its concomitants upon in-

fant mortality. In the light of industrial unrest and the efforts of workers to secure wage advancement, the influence of low earnings upon the death rate, particularly of infants, merits careful consideration. This public health aspect of earnings should receive more practical consideration by health officials. It would be a splendid advance in administration policy if, among the conclusions of investigators into the cause of death, one were to find the suggestion that all legitimate steps should be taken to raise the standard of wages in a community with a view to lessening the dire effects of poverty upon infant mortality and the diseases and handicaps of children.

The Prevention of Influenza.—Altho influenza in epidemic form disappeared from the country some time ago, it is proper to inquire as to the extent of our knowledge of preventing its spread in event of a re-occurrence. The vast extent of the epidemic gave abundant opportunity for study and experimentation along various lines, but the sum total of our knowledge has been enriched very slightly.

The Public Health Committee of the New York Academy of Medicine, reporting upon methods of prevention of influenza (*Medical Record*, Mar. 29, 1919) summarizes most of the evidence which has been gathered. The etiologic factors concerned in the causation of the disease appear to be unknown, and the view that the influenza bacillus alone is responsible appears to be untenable. Some unknown factor or factors, possibly a filterable virus, initiate the infection and are responsible for the lowering of resistance, enabling secondary organisms to overcome the de-

fensive mechanisms. Obviously, until the X-factor is determined, a rational system of prevention is impossible.

While there is a strong probability that droplet infection plays a role in the propagation of the disease, experiments serve to indicate that some unknown factor is also concerned, thus accounting for the rapidity of spread of the epidemic in communities less sparsely populated and where closeness of contact is apparently a less important factor. While direct infection undoubtedly is a factor, a complete description of the modes of dissemination becomes impossible until the causative agencies are entirely known. An astonishing and discouraging fact is found in the incidence of the infection among the strong and vigorous, as well as among those undernourished and enervated.

According to the report, a relative immunity is produced by a single attack, but there is a great question as to whether those who suffered most in the recent epidemic were those who were too young to have had the disease during its appearance in 1890, a matter of 28 years ago. Altho the largest number deaths in New York City occurred among persons 28 years of age, the mortality rate of all the groups above 25 years of age amounted to 61.6 per cent. of the total mortality. Children under fifteen years of age constituted only 21.2 per cent. of the total mortality. It is obvious that the percentage of mortality is far lower among the young exposed during this epidemic than among the large group who were alive at the time of the earlier epidemic, altho it may be argued that these older group's had not been exposed during the earlier ravaging epidemic. It can hardly be said to be proven "that those who suffered most in the present epidemic were

persons now too young to have had the disease in the epidemic of 1890."

As far as preventive measures are concerned, they are of nowise different character than the measures that would be adopted for combating the spread of any other epidemic of infectious diseases not controllable by prophylactic inoculations. The avoidance of overcrowding, the protection against droplets, the general sanitary improvement of conditions are as valuable for preventing one infectious disease as another. There are, in fact, no general principles for preventing influenza which are not equally applicable to all other infectious diseases. As far as specific protective agencies are concerned, such as the use of masks, evidence is adequate to state positively that the general masking of the population is a satisfactory procedure. The difficulties in this direction are obvious, but without frequent changing and sterilization of masks, it is doubtful if their efficiency warrants their mandatory adoption.

The use of sprays and gargles in the acute stages as a means of cleansing the respiratory passages is a line of treatment that requires the utmost care. While material reduction of the bacterial flora of the nose and throat may be effected by the use of mild antiseptic sprays and gargles, there is also the possibility of lowering the resisting power of the mucosa, and even of injuring the mucous membrane, not to mention the possible danger of creating difficulties in the Eustachian tube and middle ear as the result of careless methods.

Vaccines and serums are judged to be still in the experimental stage. It is believed that more success attends efforts at

preventing secondary infections due to organisms such as streptococci and pneumococci than can be secured thru the utilization of alleged specific vaccines to prevent purely influenzal infections.

Thus far experience has demonstrated conclusively that rest, promptly secured at the first manifestation of the disease, is of the greatest value in assisting the disease to pursue a mild course and to be free from devitalizing pulmonary complications. This procedure merits emphasis, not merely because of its effects in connection with influenza, but because of its general application during the course of all other infectious diseases.

In a sense, protecting the community against influenza, as at present understood, amounts to the utilization of the same common sense principles that underlie modern sanitation and public health administration. There is no panacea for influenza, nor is there any guaranteed method of safeguarding individuals or communities from its re-appearance. This is but another illustration of the importance of an understanding of the underlying causes of disease as a preliminary to promulgating a rational program for its prevention or cure. It is true that empirically, a few methods were discovered for the control and prevention of malaria and syphilis, but even their rational application awaited the discoveries of Laveran, and Schaudinn and Hoffman.

Until all the causative factors in the production of influenza are revealed, the medical profession is hampered in offering a satisfactory scheme for preventing its appearance in epidemic form. There is ample need for diligent research to determine the causation of so-called epidemic influenza.



MEN AND THINGS

Death of A Well-known Medical Editor.

It was with the deepest sorrow and regret that the medical profession of the country learned of the death of Dr. Charles F. Taylor, the well-known editor of *The Medical World*. Few medical men could claim a wider circle of friends or a greater following among those of his own calling. Earnest, straightforward and well possessed of the courage of his convictions, Dr. Taylor nevertheless had a gentle, kindly manner that enabled him to advance and stand by his honest opinions without affronting or antagonizing those who held contrary views. Dr. Taylor was a clear and erudite thinker not only along lines of medical thought, but also in regard to sociologic, political and humanitarian problems. He was always abreast and often ahead of the times, but never indulged in bizarre or ill-founded theories. Progressive and broad-visioned, he still was conservative and cautious in his recommendations. In his community he was a faithful leader who never shirked a duty or dodged an issue. The good he did will long remain as a monument to his whole-hearted efforts to help his fellowmen.

Dr. Taylor was best known to the medical profession of the United States as the editor and publisher of *The Medical World*, a monthly medical magazine of extensive circulation and wide influence. He was also a brilliant and prolific writer on local, national and international governmental problems and published many books and pamphlets on these questions. He also published a quarterly magazine known as *Equity*, which attracted not only national, but international attention among public men and students of governmental problems. Dr. Taylor's work as a publicist was conducted at great expense for what he considered to be the public good and without thought of financial or other personal reward for himself.

Charles Fremont Taylor was born at Attica, Indiana, on July 3, 1856. He graduated from the Central College of Physicians and Surgeons, of Indianapolis, in 1880. He practiced medicine in Indiana for several years and then came to Philadelphia and established *The Medical World*. After this publication was on a profitable basis, he gave most of his attention to sociologic, political and economic subjects. In 1892 he married Estelle Foreman, of Philadel-



DR. CHARLES FREMONT TAYLOR.

phia, who died in 1894. In 1899 Dr. Taylor married Amelia Orr Cameron, of Fort Wayne, Indiana, who survives him.

For many years Dr. Taylor was a member of the Philadelphia County Medical Society, Pennsylvania State Medical Society, the American Medical Association, the American Medical Editors' Association and the Philadelphia Medical Club; also the Art Club, City Club, Trade Press Club, Economic Club, American Academy of

Political and Social Science and the Ethical Culture Society. He was a past president of two of these organizations, the American Medical Editors' Association and the Economic Club.

In the death of Dr. Taylor the people at large, as well as the medical profession, have sustained a great loss. We shall miss his warm handshake, his genial smile and the genuine interest he always evinced in the affairs of his friends and associates. In mourning his passing, tho our hearts are sad and heavy, there is yet a deep and abiding sense of gratification in the recollections of his friendship. Fortunate, indeed, are those of us who knew the charm of his personality and can treasure the memory of the hours spent with him. The world is a better place to live in to every one of us who have been fortunate enough to have known him.

time to respond to a humane appeal and yet not fall short in their patriotism, must have found themselves in a trying dilemma. On the one side, they were aware of the persistent and spirited desire on the part of a large part of the public, and even among many leaders, to exact the last measure of punishment from the defeated enemy; and, on the other side, they were conscious of the repeated appeals by men in high places on the Allies' side who have for a long time been pressing for a generous and sportsmanlike treatment of a crushed foe. Which are they to obey?

Dr. Lorenz's appeal adds nothing to the information those who have been watching the current of events in Europe already possess. They know that starvation on a colossal scale prevails in the defeated countries. They know that the sick are insufficiently provided for and that they are dying by the thousands. They know that mothers, underfed themselves, are unable to feed their young. They know that the generation that will come to manhood and womanhood twenty years hence will be a weak, neurotic, broken, feeble race. The doctors of this country know all this, and they know what it means in terms of race progress. They are not politicians, and their impulse is to respond promptly to avoid the catastrophe that threatens. But checking this impulse is public opinion, which recalls the atrocities which were laid at the door of the Germans during the war and which is reluctant to forgive and forget so soon. And, when it is pointed out that a refusal to help means the condemnation to death and starvation of innocent women and children who had nothing to do with the making of war, the answer comes that Germany did not consider innocent women and children when she let loose her submarines and bomb-throwing airplanes. Such a contention is mischievous for two reasons: *first*, that we are committing ourselves to a course of conduct which we condemned in the Germans; and *second*, that we are fighting the enemy with his own weapons long after the fighting has ceased and the weapons have been discarded. Surely, this resolute purpose to punish the Germans for their sins must come to an end some time. At some time in the future the world will have to bury its animosities and extend a helping hand to the enemy's suffering population. When is this

Dr. Lorenz's Appeal.—Recently General Sir Frederick Maurice, one of the soundest military critics in Europe and a man whose high position is a guarantee of his patriotism, published an article appealing for a more humane treatment of the defeated Germans. He criticized the "bitter-enders" who persisted in their truculence long after the occasion required it and said their conduct was like the conduct of a man who has cut a snake to ribbons and then proceeds angrily to trample it under foot. This article was vigorously challenged by several public organs, and it is doubtful whether the American public responded to it as Sir Frederick had perhaps hoped. Not so long ago there was another appeal issued, this time by Dr. Lorenz, of Vienna. It was an appeal for the starving, underfed, and disease-ridden women and children of Europe. The appeal was directed to the public in general, but it must have had particular significance for the medical men of this country. Dr. Lorenz is well remembered here, not only for his bloodless operation on Lolita Armour some years ago for congenital dislocation of the hip, but for his splendid service to both humanity and the profession thruout his long and honorable career. Such an appeal, coming from such a source, could not fall upon deaf ears; and many doctors no doubt, wishing at the same

to be? Clearly, the proper time for forgiveness is the end of hostilities, and in the present instance this is particularly true. If Germany had come out of the war unbeaten, if she remained strong and still constituted a threat to the peace of the world, it would be not only fair but necessary that her punishment continue until she were rendered harmless. But Germany is thoroly beaten, she has been rendered impotent to do further harm, and she is burdened with obligations which reduce her to the rank of a fourth-rate power. She has been completely disarmed and discredited. Her punishment has been complete.

Healing the Wounds of the War.—It is contrary to the spirit of American manhood to hit an opponent when he is down. It is particularly repugnant to think that the "bitter-enders" are hitting now, not at the soldier who fought against them, but at the women and children and the aged of the defeated populations. The desperate appeals that have come from Germany and Austria have not been for the men who have returned to civilian life, but for these who suffered themselves during the war and who are suffering more acutely now. It is against these that any effort to perpetuate the bitterness that was bred during the war is being directed. How long is this bitterness to be maintained? There have been wars before this. Less than sixty years ago this country was in the throes of civil strife. The bitter struggle lasted as long as the recent war, and the charges of inhumanity that were laid at the door of the South were numerous. They committed innumerable atrocities. Feeling in the North was acute. But when peace came at last, these differences were promptly buried. In a few they persisted, but these few were not the wisest; and in a short time the past was forgotten. It was inevitable that it should be. The differences of the recent war will have to follow the same course. They cannot be perpetuated forever, and the sooner they are forgotten, the better for the progress of the world.

And, in this task of healing the wounds of the nations, the doctors of the world can play a large part. It may be difficult for the statesman to reach a hand to his fallen fellows, it is difficult for the soldier to shake off the hostility which was a part of his edu-

cation, but it is easy for the doctor to respond to an appeal for humaneness in lightening the burden of the sufferers. His calling is an unselfish, magnanimous one, and his magnanimity does not cease at the frontiers of his country. It reaches beyond them. Wherever there is suffering, there his duty lies. He knows that, to help an individual, whatever his race, is to help humanity. That is the larger view, the view, we hope, the doctors of this country will accept. But even the narrower view points to rewards which the average individual seems to lose sight of. Germany has been crushed, she is on the verge of bankruptcy and dissolution. But she has an enormous obligation to fulfill. She owes the world reparation and indemnities that reach into the billions. This reparation and these indemnities are necessary to the Allies, who were brought to the point of exhaustion by the war, and unless they are forthcoming the Allies will themselves face bankruptcy. To refuse to help the Germans at this time would be utterly visionless and suicidal. It would be robbing the Allies of their just reparation. Germany cannot pay unless she is helped to her feet, unless her industries are revived, unless her population is restored to normal conditions of living. If Germany is to have the money to pay the Allies, her people must work. If her people are to work, they must have food and proper medical attention. Refusing humane assistance to Germany at this time is refusing aid to the Allies. Those who persist in their determination to keep the Germans helpless are indulging in the familiar but pathetic pastime of "cutting off their noses."

Doctors vs. Legislators.—Exchange of opinion with a number of doctors revealed their quick responsiveness to an appeal such as Dr. Lorenz's and indicated how simple a thing it would be to bridge the gap that has grown between the warring nations if the matter were left in the hands of the medical men. But, unfortunately, doctors do not make war and they do not make peace. It is the legislators who make both—and they make them both badly. During the war, the gentlemen in Washington obstructed and bungled almost every measure that came up before them. Now that the war is over they betray the same incompetence to bring it to an end promptly and sat-

isfactorily. A year after the armistice came into effect, they find themselves buried underneath a mountain of verbiage and vain eloquence—and we are still at war. The treaty of peace has not been signed, the League of Nations proving an insurmountable obstacle, and the reason given is that the Covenant, which not so long ago was the hope of the world, is a threat to "Americanism." It is as "Americans" that they object to the Covenant, and their appeal to the country has been consistently on the ground of "Americanism." This meretricious appeal, which is as trivial and unimaginative as the waving of the flag at the curtain of an otherwise poor play to get a little applause, is an almost convincing sign that the peace bunglers have a bad case on their hands. It is the appeal to which every losing cause resorts. This country did not go to war on account of "Americanism," and that principle is not the determining factor in the making of peace. A high national spirit and loyalty to one's country is a valuable asset which it would be folly to deprecate, but such a spirit is valuable only within one's own borders. "Americanism" is a matter of primary importance within our own borders, where the national interest is concerned; but it retires to secondary importance, and rightly so, where the interest of the world at large is concerned. When this country went to war, it definitely broke away from the provincialism and isolation which was one of its petty virtues and definitely took its stand beside other nations as a member of the international family, as much concerned as any other member for the peace and progress of the world. It helped achieve the peace it sought. Will it now withdraw from any share in the progress that is to follow if this peace is pursued to its logical end? That, certainly, was not the intention of the nation when it entered the war, it was not the intention of President Wilson when he outlined the aims of the Allies, it is not the spirit of the men who offered their lives and gave them in large numbers to secure permanent peace and understanding.

The enemies of the peace treaty are making their fight on the ground that it is an imperfect thing. Surely, they are not so elemental as to believe the choice, in any difficulty, is simply and solely one between the perfect and the imperfect. Perfection

is the most elusive thing in the world, perhaps it is unattainable. And the present treaty is by no means a perfect instrument of peace. Its friends do not claim perfection for it. President Wilson has at no time maintained that it is a cure-all and a finality. Again and again he has insisted that it is the best thing the brains of Europe and America have been able to devise in circumstances that have defied solution. Before the war was won, the league idea was universally accepted. Now it is suddenly discovered that "Americanism" is at stake, and the patriotism of the masses has been appealed to. The sensitive public, always alert when there is any question of its loyalty, is in a quandary. But it is one which it should be an easy matter to relieve. Theodore Roosevelt was a good American, a man of the stanchest patriotism, yet less than a decade ago he worked for something that was very like a League of Nations. Ex-President Taft, whose Americanism is certainly indisputable, negotiated a score of treaties with foreign powers which practically brings them together into what is in every respect but the name a League of Nations. Both Ex-Presidents were inspired in their efforts to attain an understanding, not by their Americanism, but by their sense of responsibility for the peace of the world. Despite their strong nationalism, they found a place in their outlook for a strong internationalism. If the gentlemen in Washington could cultivate such an outlook, it would be possible to put a prompt end to the numerous wars which have succeeded the war that came to an end a year ago. Failing of this, the chaos that threatens Europe will become a chronic and permanent state abroad.

Motherhood and Maternity.—There are few things about which we are more sentimental than motherhood. From time immemorial, the poets have sanctified the honored title of Mother, and even the shabbiest and least imaginative individual has always been able to respond freely and quickly to the glamor which attends the name. And yet, despite all this, is it not strange that we have remained so utterly unsentimental and unresponsive in the matter of maternity? The world has ever paid

lavish tribute to motherhood, but it has always shown the most amazing indifference to maternity. At the recent International Congress of Working Women, a plan for systematic government aid for mothers was thoroly discussed, but it is doubtful if the plan will gain any greater headway now than it has in the past. It is a sad comment on the interest shown in this subject that the newspapers gave but the scantest notice to the proceedings of the Congress, and the public remained as apathetic as ever. Yet what can be of more vital importance to the race than its survival under the most favorable conditions? And its survival under favorable conditions is decidedly threatened by the march of events which, if they are not properly met, will constitute a very real and very grave danger.

From the time women rose from all fours and began to walk erect, maternity has been a problem, growing more and more troublesome from era to era, until now it is distinctly one of the concerns that must be met soon and adequately if the race is to go on. When woman's place was in the home and motherhood, however, indifferently accepted, was a more or less leisurely thing, the problem was not so acute. But now woman's place (at least that of a large and increasing proportion of women) is no longer in the home. Hundreds of thousands have drifted into shops and factories, into business and the professions, and for these maternity is an obstacle which they must consider seriously before they agree to accept it. But chiefly the problem of maternity is an acute one for the women in industry. These women, if they accept maternity, do so at the risk of losing their jobs and interrupting their careers. They cannot undertake the risk of remaining away from their jobs for four or five months and exposing themselves to the competition of their fellows. And it is not likely that an employer, under present conditions, will be willing to hold a place open for so long a time. Furthermore, the cost, in actual dollars and cents, of childbearing is an almost forbidding consideration. Even among the better classes one frequently hears the remark that "of course we would like a family, but we can't afford it." And the working woman can afford a family even less. The situation is a very serious

one, but nothing is being done in this country to relieve it. In Europe several countries have passed legislation practically endowing motherhood and securing the race against the danger of suicide. The recent Congress agreed that an expectant mother should be granted six weeks' leave before and six weeks after maternity and that her compensation, by the state or by industry and the state together, should not be less than the minimum wage paid in the industry in which she is employed. This is a modest enough plan and it would be a sad comment on the vision of our statesmen if the project does not win their approval. Miss Julia Lathrop, chief of the Children's Bureau of the Department of Labor, speaking at the Congress, urged a more practical and sensible attitude toward motherhood to replace futile sentimentality. That better counsel may prevail in the near future than in the past is to be hoped for in view of the closer attention that is being given to the question of maternity and childbearing. Whether there is to be a more intelligent treatment of the problem in the future will be judged from the fate of the bill before the Committee of Public Health Quarantine, providing for the cooperation of the Public Health Service, the Commissioner of Education and the Department of Labor in reducing the number of deaths every year from causes connected with childbirth. Concerning the problem of maternity, it should be borne in mind that two powerful instincts are in conflict in woman: the instinct of self-preservation and that of motherhood. It should be the duty of the state to make the instinct of motherhood free by making the other a less pressing consideration.

Public Health and Telephones.—Dr. Royal S. Copeland's rebuke to the telephone companies and his criticism of the deplorable service as a danger to the public health is welcome for more than one reason; not only has he spoken publicly the thought that has been in the minds of countless citizens (a thought which has not infrequently found private expression in words that could not be reproduced here), but he has had the courage to attack a powerful corporation openly and in undisguised terms,

a course which hitherto political considerations have too often made the Health Department, if not too timid, at least too discrete, to follow. After twenty-five inspectors of the Health Department had spent two weeks studying the situation and had made a report to the head of the department, Dr. Copeland ordered a thoro investigation on the ground that conditions were "prejudicial to public life and health." The utterly inadequate, often incompetent, service which the telephone companies have rendered of late is unquestionably a menace to the public health, not to mention a menace to the public temper. It is easy to conceive the danger, always present, in the use of a public telephone booth after it had been occupied by an individual suffering from some contagious or infectious disease. Normally, such a person would occupy the booth but a few minutes. With the present service, he would occupy it at least three times as long, multiplying the danger of contagion by that number. Besides, as Dr. Copeland points out, a man with high blood pressure or weakened arteries, tried beyond endurance by the long and indefensible delays of Central, is likely to break a blood-vessel and suffer from cerebral hemorrhage. These reasons alone are ample on which to build a case against the companies, but there are others equally potent. The telephones are a public utility, largely employed by individuals as a means of getting into immediate touch with their physicians in case of necessity. It is imperative that this service be not only adequate but prompt. How much physicians have suffered from the bad service it is not easy to say, but they probably have suffered as extensively as the other callings. And the loss to the physician implies a much more serious loss to the individual in need of his services. The present deplorable service is indefensible, and in numerous instances has every appearance of being deliberate. A very busy man, in his office all day, was told by a friend that he had tried to get in touch with him all afternoon on one occasion and that the operator had each time told him there was no response. This man was in his office all the time, and at no time did his telephone bell ring. Another man of consequence in the business world called a number and was repeatedly told that the line was busy. After several vain efforts,

he insisted that the operator connect him. She once more announced a busy wire, and he insisted on speaking to the manager. He made his complaint and the manager promptly replied that the operator was right and that the single wire in the office he was trying to reach was being used. Knowing that there were eighteen wires leading into that office, the man persisted until he finally obtained the number. He asked the office operator if at any time all the wires had been occupied that afternoon and she told him that at no time were they occupied, reaffirming his information as to the number of wires the switchboard commanded. He was right; Central was wrong, deceptive and impudent. Yet there was nothing for the man to do but suffer and pay his bill when it came. The same condition can no doubt be reported in physicians' offices. In pursuing his investigation, Dr. Copeland probably recognized this serious menace to the public well-being. And meanwhile the telephone companies might be prevailed upon to give prompter service when it is stated that it is a doctor's number that is being called. If the service must be bad, it should be as good as it can be—at any rate in urgent cases.

The Major and the Minor in Medical Practice.—Many minor men try for the major places in practice, and many of them fail. Such failures take all of the ambition out of a doctor. Few of us can attain to the major places and no beginner in practice really knows in advance whether or not he has it in him to attain to a major place. So it is wise to begin practice in a minor place and try it out for a couple years. Some will do well to take a minor place in an important city. In either event one will come to realize whether he is best fitted for a major or a minor practice. There is no disgrace in deciding to be a real success in a minor rôle; the real disgrace is failure from misdirected ambition. Many minor practitioners who stubbornly try to maintain an untenable position make less than a thousand dollars a year, whereas they might readily make five thousand dollars yearly if they had the good sense to start fresh in a practice to which they are naturally adapted, and their final honors would be greater.—*Medical Council.*



THE ETIOLOGY OF HYPER-TROPHIED PROSTATE.

BY

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"Hypertrophy of the prostate" is pathologically inaccurate nomenclature, but its meaning has become so definite from long usage that it probably is the best available. The term implies an enlargement of the prostate, almost always first brought to the surgeon's attention after middle life, which enlargement cannot be explained by neoplasm, tuberculosis, or simple or specific inflammation.

Hypertrophy of the prostate is the most important morbid condition of the organ coming under the observation of the general practitioner. A large proportion of individuals past middle age are subject to it, and are more likely to come primarily under the notice of the medical man than under that of the surgeon. Upon the management of the case when it first comes under observation depend the patient's safety and future comfort. Apparently simple measures of exploration and pallia-

tion at the hands of some general practitioners are far more dangerous on the average than radical operations undertaken under like circumstances by the specialist, because of the rougher manipulations and less conscientious technic from the aseptic standpoint. It is obvious, therefore, that the physician should thoroly understand the disease and, more especially, appreciate the relation of bacterial infection to the morbid conditions incidental to prostatic enlargement. It should no longer justly be said, as the senior author so frequently has expressed it to his classes, that the prostatic's greatest danger often begins with his first visit to the doctor.

Etiology.—Very few pathologic conditions have been the subject of so great variance of opinion as to their etiology as has enlargement of the prostate. Opinions have varied from the agnostic view that, in the present state of our knowledge, we are unable to determine positively the cause of the disease, to assertions as dogmatic as could be imagined. It is noteworthy that most modern theories are more open to criticism than are some of the more ancient views. There was much logic in the opinion of Home, who, nearly a century ago, promulgated the theory that the principal cause of prostatic disease was slow return of blood from the vesical neck, due to disadvantageous situation of the veins in re-

lation to the heart, which favors habitual congestion of these vessels. This tendency to congestion he held to be enhanced by high living or any other circumstance that increased the circulation in this region. Home believed that traumatism—such as that produced by horseback riding—sometimes produces in the deeper parts of the prostate rupture of blood-vessels, subsequently followed by hypertrophy. This rupture of vessels he believed to be analogous to apoplexy. He also assigned to old age a prominent rôle. Home's theory is very suggestive in the light of modern views on bacteriology. Congestion under certain circumstances favors bacterial invasion and, as later will be noted, invasion of the prostate by micro-organisms probably is a very important factor in the etiology of prostatic hypertrophy.

Wilson, writing in 1881, endorsed the opinion of Home so far as the tendency to the disease on the part of high livers is concerned. He claimed that strict celibacy, on the one hand, and venereal excess on the other, alike are productive of the disease, tho admitting exceptional cases in persons who live abstemious and temperate lives.

Sir Charles Bell asserted the existence of a special predisposition to prostate enlargement, but did not define it. Admitting this predisposition, he believed the exciting causes to be associated with irritation of the bladder, with resulting frequent contractions of that viscus. As a consequence of these contractions of the bladder, he believed the urethral muscles to be the seat of overaction, resulting in a drawing back of the so-called median lobe so as to elevate it, thus causing urinary obstruction.

Samuel Cooper confessed ignorance of the causes of prostatic hypertrophy. He seemed to think from his experience, how-

ever, that people who led sedentary lives were most susceptible to the affection.

Astley Cooper arbitrarily stated that hypertrophy of the prostate was the consequence of old age alone, and not of disease. Brodie also believed that enlarged prostate was a matter of course in old men. He held that prostatic hypertrophy never becomes manifest until the development of plainly-marked evidences of senility—which obviously would not prove that the enlargement was caused by senility.

Gross, the elder, expressed the opinion that prostatic hypertrophy resulted from habitual engorgement of the organ incidental to (1) protracted and repeated sexual intercourse; (2) irritation from vesical calculus; (3) the free use of stimulating diuretics and alcohol or malt liquors; (4) exposure to cold; (5) the suppression of cutaneous diseases; (6) gout and rheumatism; (7) traumatism; (8) frequent catheterization; and (9) habitual straining at stool, as in chronic diarrhea and other affections of the bowels.

Mercier classed as predisposing causes all conditions and influences favoring circulatory sluggishness. According to him, men of lymphatic habit with plenty of cellular and adipose tissues generally have a lax and unresisting venous system. Such subjects, he claimed, are most frequently the victims of prostatic enlargement. He, too, believed that sedentary habits favored the disease.

Amussat stated that syphilis, a foreign body in the bladder, and stricture of the urethra were the most common causes of prostatic enlargement. It is observed, he claimed, chiefly in elderly persons who have for a long time used sounds or bougies upon themselves.

Desault claimed that enlarged prostate

was due to old age, being found only in elderly men, and those who had experienced numerous attacks of gonorrhea. He believed, also, that the disease might result from "scrofula" and other cachexias.

Civiale "put the cart before the horse" and placed vesical calculus first in the order of etiologic prominence. He regarded organic stricture of the urethra as etiologically second only to vesical calculus. He denied the relation of venereal excesses to chronic prostatic disease.

Coulson contents himself with the presentation of the views of others and has no definite opinion of his own.

Thompson expresses unequivocally his belief that prostatic enlargement often is seen in relatively young patients as a result of interstitial plastic effusion, due to inflammation, the enlargement occurring in old age being an unnatural development of the prostatic tissue proper, *i. e.*, true hypertrophy. According to him, inflammation and its products do not favor overgrowth, but are directly antagonistic to such a process. He believes, therefore, that a prostate enlarged by inflammatory effusion probably is less likely subsequently to become hypertrophied. Nutrition is impaired, not encouraged by inflammation. In brief, Thompson excludes inflammation from the etiology. Urethral stricture and calculus are not considered by him to be important etiologic factors. He does not believe that habitual engorgement of the prostate and hemorrhoidal plexuses has much to do with the etiology of the disease. He says:

"True hypertrophy, in any situation, never has venous congestion for a cause; venous congestion impairs structure, and predisposes to ulceration of the tissues affected by it, but never augments vital force

or stimulates growth."

Upon this ground Thompson denies congestion as a possible cause of hypertrophy of the prostate. He further disputes the possibility of rheumatism, gout or syphilis playing any part in the pathologic process. As to the effect of sexual excesses, he says:

"Much importance has been attributed to the effect of habitual indulgence of this kind; but, from the fact that the affection has been observed to occur in individuals known to have been remarkable for chastity, the opposite extreme of continence has been regarded as exercising a similar influence. In regard to the first, it appears reasonable to believe that repeated use might induce hypertrophy here as elsewhere; while, without entering upon the question of the prostatic function, it is impossible not to associate the organ with the sexual act, and admitting this, it is not easy to escape the inference that hypertrophy is likely to result from sexual excess; yet facts do not favor this view. Hypertrophy does not exist when the function is in greatest vigor and is not called into immediate existence by the most licentious excesses indulged in during the prime of life, and it must be admitted that in any part of the body hypertrophy develops itself coincident with or, at all events, immediately follows the increased action which induces it."

Altho Thompson disputes the view that the prostate is truly a secreting gland, he admits it for the sake of argument, and claims that no other gland offers a pathologic parallelism with hypertrophy of the prostate, all of its component tissues not being increased in their normal relative proportions. An enlargement of the gland may be due to increase of glandular elements; or, on the other hand, to a change

in structure and increase in bulk of the "prostatic tissue proper". Thompson logically enough does not believe, furthermore, that enlargement of the prostate is a simple "muscular hypertrophy" induced by increased action. He calls attention to the close similarity between the uterus and the prostate and believes that:

"Just as during the latter part of the period of reproductive activity the uterus is prone to develop new growths identical in structure with its own, a similar tendency will be found to develop new growths in the prostate at a corresponding period of the life of the male."

Thompson's tables apparently support this, by showing that hypertrophy of the prostate is a disease incident to old age, but he fails to indicate the precise connection between the disease and advancing age. Even granting that old age is the chief etiologic factor, there yet is much to be accounted for. Why should so large a proportion of elderly men present a condition so distinctly pathologic, affecting an organ which, in old age at least, should be practically of no importance from a physiologic or functional standpoint? Thompson himself admits that prostatic hypertrophy is not necessarily or even usually present in old age, but is rather exceptional. According to him, a slight tendency to hypertrophy undetermined during life may exist in about one in three individuals after 60 years, and marked enlargement may affect one in seven or eight after that age. Among 40 prostates of elderly men dissected by Thompson only 32 per cent. were appreciably enlarged, and but 2 per cent. sufficiently to have produced symptoms during life.

Considering the function and period of greatest functional activity of the organ,

atrophy, rather than hypertrophy, should be expected in old age. Indeed, atrophy is the normal "old man's prostate."

The modern French school, following the distinguished Guyon, entertains the peculiar view that prostatic enlargement is not a local disease and due to local causes, but that all the urinary organs, particularly the bladder, undergo analogous changes, the origin of which should be looked for in structures bearing absolutely no anatomic relation to the urinary system, implying, in short, that enlargement of the prostate is dependent upon general atheroma. Thus, this school claims that the walls of the bladder become weakened, with resulting accumulation of residual urine, followed by cystitis prior to the enlargement of the prostate. Guyon even went so far as to assert that chronic retention of urine was due, not to prostatic obstruction, but to impairment of vesical contractility produced by the general atheroma, of which both the enlarged prostate and the associated bladder conditions were merely local expressions. The obvious corollary of this position was that operation for the removal of the prostatic obstruction was irrational and foredoomed to failure. Guyon, however, finally adopted prostatectomy, performing his first operation—a partial one *via* the perineal route—in 1889.

Reginald Harrison asserts that the habit of partial retention frequently precedes the vesical signs of prostatic enlargement, the depression of the posterior wall of the bladder being a primary change. In this the author heartily concurs. Belfield long ago called attention to the fact that a small amount of residuum was quite common in old men with normal prostates and advised that pains be taken to completely empty the viscus during micturition. Harrison

further holds that depression of the posterior wall of the bladder results in compensatory hypertrophy, which determines the development of a strong muscular band or buttress at the base of the trigone, and finally enlargement of the prostate itself.

Even tho we admit that in certain cases depression of the floor and alterations in the walls of the bladder precede perceptible pathologic change in the prostate, it is obvious that this condition may in no way be causative of the prostatic disease. Such cases are no argument against what appears to be the correct view, *viz.*: that serious pouching of the bladder generally is a secondary condition. For example, general atheroma with resulting alteration of the structure and power of the bladder might occur and subsequently become associated with hypertrophy of the prostate, the latter condition being due to the same causes as in other cases in which prostatic hypertrophy is unassociated—primarily at least—with disease of the bladder.

Much of the etiologic obscurity of prostatic hypertrophy probably is due to the clinical fact that the primary condition that precedes true hypertrophy is rather exceptionally brought to the attention of the surgeon. A certain amount of diffuse hyperplasia from prolonged hyperemia, incidental to various causes of irritation, undoubtedly exists in many men under middle age. It is not, however, until distinct "hypertrophy" or hyperplasia has occurred that definite symptoms are complained of. In operated and in fatal cases the process is so far advanced as to bear very little resemblance to the chronic engorgement and simple hyperplasia that constituted the initial stage in the so-called hypertrophic process. As for Thompson's views regarding the etiologic importance of inflam-

mation and circulatory disturbance, this much may be said, *viz.*: chronic congestion and inflammation do not produce genuine hypertrophy, it is true, but they do cause hyperplasia, especially where the circulation is impeded by the relatively dependent position of the part. The hyperactivity of the organ induced by the resulting irritation will explain the pseudo-hypertrophic element of the disease, which really is subordinate to the hyperplasia. This argument is especially applicable to the prostate, which is a glandulo-muscular organ. *An important point is that prolonged congestion, with or without hyperplasia, favors germ invasion, which is of especial moment in view of the glandular nature of the prostate.*

Ciechanowski recently has committed himself to the theory that prostatic enlargement after middle life is due to inflammation which has existed for years with few or no symptoms. He believes that chronic inflammation involves the gland stroma. If the stroma immediately surrounding the urethra and the principal gland ducts of the prostate are involved, the ducts are contractured. As a result of this obstruction the acini of the gland are dilated. Simultaneously there occurs proliferation and desquamation of the epithelium. Ciechanowski believes that the gland enlargement is chiefly due to dilation of the tubuli of the gland. He claims that if the inflammation affects chiefly the periphery of the gland, atrophy of the prostate results from compression of the acini.

Racial peculiarities seem to have a marked influence in the etiology of hypertrophy of the prostate. It rarely is met with in the negro. Our distinguished countryman, the late Dr. Hunter McGuire, stated that he never had met with an ex-

ample of it in the pure-blooded negro, but had seen several cases in mulattoes. Other surgeons claim to have met with the disease in pure-bloods. Such cases as the author has seen have been "enlargement" from inflammation.

The causes of the disease, according to the views of the author of this paper, may be classified as follows:

General causes:

- Individual predisposition.
- Senility.
- The gouty or rheumatic diathesis.
- Syphilis (?).
- General atheroma.

Local causes:

Chronic irritation and hyperemia due to urethral or bladder disease.

Early gonorrhreal prostatic infection.

Colon bacillus infection at any period of life.

Remote causes:

- Masturbation.
- Coitus interruptus.
- Sexual excesses.
- Prolonged and ungratified sexual excitement.

(It is obvious that the local and general etiologic factors are most effective when associated).

The foregoing causes are not all recognized by most modern authorities, yet would appear to be based upon sound physiologic reasoning, taking into consideration the structure and function of the organ. The prostate is one of the most important of the sexual organs. It is particularly important because the prostatic urethra is the seat of sexual sensibility and the entire organ is involved in the venereal organism and because its secretion adds to the bulk of the semen.

One of the most important elements in

the sexual act is active hyperemia of the prostate and it seems plausible from this fact alone, that excessive indulgence may produce permanent injury, especially if the colliculus becomes irritable and inflamed. Should sexual excess be alternated with prolonged and ungratified sexual desire, a permanent impression is still more likely to result. Constant overstimulation of the glandular function of the prostate is a very important element for consideration. If infection be superadded, the conditions found in prostatic hypertrophy should not be surprising.

Of all the etiologic factors in prostatic hypertrophy, none, in the authors' opinion, is more potent than the abuse of the prostate incidental to coitus interruptus.

Enlargement of the prostate produced by chronic hyperemia usually is of no particular importance during youth or early adult life. This probably is explicable by the relief afforded by free secretion, the elasticity of the tissues themselves, and the fact that the bladder retains its normal tonus. When, however, the individual passes the prime of life and his tissues become less resilient and secretion in general less active, there is scantier secretion, with diminished activity of the return-circulation, and the hyperemia is not relieved.

Few modern authorities attribute so much importance to prolonged irritation and habitual engorgement of the prostate from various causes as did the elder Gross, but it is the authors' opinion that in some respects the views of this distinguished surgeon were based upon accurate observation and sound reasoning. Any condition of the urethra giving rise to prostatic irritation and hyperemia, or to actual inflammation, may lead to permanent irritability of the vesical neck, with a

resulting increase in frequency of urination, which may become permanent, especially if infection be superadded. It seems reasonable that this may produce hypertrophy of the "overworked" prostate later in life when, as is likely to be the case, undue sexual excitement or indulgence co-exists with the urinary irritation. The gouty and rheumatic diatheses probably bear a subordinate relation to the etiology of hypertrophy of the prostate in certain cases by increasing irritability of the tissues in general. In this connection it must not be forgotten that rheumatism often is due to prostatic infection and a result, not a cause, of prostatic disease.

In a general way it may be said that the various etiologic factors outlined are productive of what the senior author long ago described as "prostatic overstrain", which bears the same relation to prostatic hypertrophy that a long-forgotten strain, experienced during early life, sometimes does to a stiffened and thickened joint in the aged. It is a matter of common experience that when the tissues begin to lose the elasticity of youth, when joints begin to grow less mobile and a tendency to rheumatoid pains and other senile difficulties develops, special complaint is likely to be made of so-called rheumatism or rheumatoid arthritis, limited to some joint that suffered an injury at some remote period. Many injuries experienced in youth and long forgotten are called to mind by some pathologic condition supposedly incident to senility. It hardly is conceivable that so large a proportion of men would develop prostatic hypertrophy if there were not some such special causes for the condition as those above mentioned. Prostatic hypertrophy certainly is not a natural concomitant of advanced life, and it is probable that the causes outlined bear

the same relation to it that frequent child-bearing does to certain pathologic conditions of the uterus. It is noteworthy that the majority of authorities, who do not frankly acknowledge their inability to assign the disease to any particular cause, dwell with greater or less emphasis on the dependence of the disease upon conditions that produce irritation and hyperemia of the organ.

Prostatic enlargement, as shown in the résumé of etiologic opinions, has been attributed to urethral stricture. Stricture undoubtedly is capable of producing chronic congestion and hyperplasia of the prostate—*i. e.*, overstrain with resulting circulatory disturbance and associated infection. Paradoxical as it may seem, however, the danger of resulting prostatic hypertrophy is inversely to the degree of obstruction and back pressure. Strictures of large caliber in the penile urethra produce proportionately greater reflex disturbance of the prostate than do deep strictures of small caliber. A man who, at the age of from thirty to forty, develops a tight stricture in the deep urethra is likely to be perfectly protected from enlarged prostate in after-life. Irritation and congestion of the prostate occur, it is true, but hyperplasia of the portion of the organ most likely to produce urinary obstruction is prevented by the pressure of the urine in the prostatic urethra during micturition. The authors' experience in the performance of perineal section upon tight strictures in the musculo-membranous region is that the prostatic urethra often is greatly dilated, apparently at the expense of the prostate itself, or at least of that portion immediately contiguous to the mucous membrane lining the prostatic urethra. The effects of pressure in producing relative prostatic atrophy

are well shown in cases of calculi that have become lodged in the prostatic urethra. There may be, it is true, compensatory hypertrophy of the remaining muscular fibers of the prostate, but we must not forget what seems to be a logical analogy, *viz.*: cardiac hypertrophy followed by extreme dilation resulting from obstructive valvular lesions.

The rôle of infection in the etiology of prostatic "hypertrophy" is, in the authors' opinion, of primary importance. The most important part of the prostate being essentially glandular in structure, it is necessary only to recall various factors which produce hyperplasia of gland tissue in other localities to comprehend the possibilities of infection in their relation to prostatic overgrowth. The point of departure in the so-called senile enlargement of the prostate is, in the senior author's long-held and often-expressed opinion, glandular hyperplasia, and to him it always has seemed logical to infer that an infection of some kind—superadded or not to prostatic hyperemia, active or passive—is the starting point of most if not all cases of prostatic hypertrophy. Gonorrhea earlier in life leaves its mark in a low grade of irritation and infection which leads primarily to hyperplasia of the glandular prostatic elements and later to more marked hyperplasia and a greater or less degree of fibrosis.

But how shall we explain on the basis of infection, the occurrence of prostatic hypertrophy in men who never have been infected by gonorrhea? The senior author of this paper long has contended that this is easily explained by infection with the colon bacillus, to which in every individual the prostate especially is exposed. The prostate is immediately contiguous to the bowel, and the intimate relations of the prostatic and

hemorrhoidal plexuses of veins, afford a special facility for infection of the prostate from the bowel. Congestive and inflammatory conditions of the lower bowel produce hyperemia of the prostatic plexus of veins and not only favor transmigration of micro-organisms but, by evolutionary adaptation, so change the properties of the colon bacillus that it becomes actively infectious and most pernicious in its effects. Should slight lesions of the rectal mucosa coexist, the transmigration of the bacillus coli is likely to occur at any time. Once the paraprostatic tissues are invaded it is but a step to infection of the glandular tissue of the prostate. A low grade of inflammation resulting, glandular hyperplasia follows, its progress being very slow and requiring a long period for its development to the point of producing symptoms. Indeed, unless more or less acute exacerbations occur, and in the absence of such form of development as will produce obstruction of the urinary way, the attention of the patient may never be called to his prostatic overgrowth. Urinary symptoms often occur suddenly from more or less acute hyperemia of the prostate. Retention occurs, the doctor is called and the catheter is passed. Infection of the bladder is likely to follow, which infection usually, and often justly, is charged up to a dirty catheter. If, however, these cases be carefully studied, the majority of them will be found to be bacillus coli infection from transmigration or some accidental auto-infection—often with superadded mixed infection. This may occur under the most careful and aseptic manipulations. *Whether or not the bacillus coli primarily is responsible for a single case of prostatic hypertrophy, the fact remains that prostatic disease of whatever kind is a constant invitation to colon*

bacillus infection, and few cases of primary prostatic enlargement run their course without its development. Irrespective of its etiologic importance, it is obvious that the effect of intercurrent colon bacillus infection must be an increase of the enlargement and of the obstructive effect of the prostatic disease. As bearing upon the etiology of prostatic hypertrophy, in the authors' experience, superadded colon bacillus infection of the prostate and bladder is suggestively frequent in sub-acute and chronic deep-seated gonorrhea. A very large proportion of cases of chronic so-called gonorrhreal cystitis and prostatitis really are colon bacillus infections in which gonorrhea merely has prepared the soil and plays a distinctly subordinate rôle.

Apropos of "individual predisposition" the peculiar tendency of some subjects to fibrotic conditions is worthy of note.

THE BELLADONNA TREATMENT OF EPILEPSY AND OF OTHER SPASMODIC DISEASES.

BY

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For some years past I have felt dissatisfied with the usual methods of treating epilepsy. For the many cases I have seen, both in private practice and in my large clinic for children, I have formerly advised the mothers to regulate the child's diet, keep the bowels open, avoid all mental excitement, and have added to this the medicinal treatment of so many grains of potassium bromide, or of the triple bromides,

three times a day. I then felt satisfied that I was doing all that could be done with our present knowledge and obtained the same results as other physicians who treated epilepsy by the same methods. About five years ago, however, I felt convinced that something more could be done and that a treatment which tried to eliminate the peripheral irritant and thus prevent a nervous discharge or spasm from the unstable grey matter of the brain was the most important element in the treatment for this disease.

We all know how one fit predisposes to another and how readily the unstable grey matter of the cortex gets into the habit of discharging nervous energy. For some years past I have adopted the plan of asking the mother or friend of the patient whether there is noticed any peculiarity about the child before it develops the fit or convulsion. I am frequently told that the mother knows when a fit is coming on and the following may be noticed: For some time before the fit the little patient is feverish and constipated, or may be nervous and cross, others flushed and forgetful. These are premonitory signs and are quite distinct from the aura and demand prompt treatment. I have proved that if the peripheral irritants can be got rid of, such as temperature, constipation, etc., in such cases where a history can be obtained, we are in a position by proper treatment to prevent the fit taking place. The first epileptic fit makes its impression on the brain; it may have required a considerable irritant to produce it, but the next is produced much more readily and it is not long before the brain gets into what may be termed, the epileptic habit.

There are a great many other cases where a history of premonitory signs cannot be obtained. Here the treatment must be that

which you adopt for epilepsy. I fail to see the difference between the convulsion in an infant and the epileptic fit in the older child or adult. The cry may be absent in the infant, but how frequently is it absent in older children or in adults. In the infant we get the same tonic spasm as in an adult. This may be of short duration followed by clonic spasm, as well as frothing from the mouth, biting the tongue, relaxation of the neck of the bladder, etc. We lay great stress upon peripheral irritants, but peripheral irritants will not act upon the brain of a healthy child. The child who has a normal brain will not develop convulsions, no matter what peripheral irritant happens to be present. We advise the removal of adenoids, circumcision, etc., to remove any possible irritants in convulsions, and this is good advice, but no peripheral irritant will act as a direct cause of convulsions or epilepsy in a healthy brain. The direct cause is congenital weakness or irritability of the grey matter—without these we do not get convulsions. What percentage of children, for instance, who require circumcision, or who should have adenoids removed, suffer from convulsions or epilepsy? The percentage is very small indeed. On the other hand, how many children who have this congenital lack of nerve tone are relieved by the removal of these peripheral irritants? This unstable condition of the brain structure is an inherited condition.

I am inclined to believe that this inherited brain deficiency is one of nutrition of the grey matter or of the cortex. Sir William Gowers found that in over 50% of 1450 cases there was an inherited tendency to epilepsy or of some other nervous disorder. Most of these children belong to nervous families. It frequently happens that one member of the family will suffer from ep-

ilepsy and another from insanity. I would not classify epilepsy as a functional disease because I fully believe that cases of epilepsy must be accompanied by an organic brain condition or deficiency and that in most cases of idiopathic epilepsy this peculiar structural condition is an inherited one and most likely a deficiency of nutrition.

The classification of idiopathic epilepsy into major and minor forms, to my mind, is not complete and would suggest that we add to this classification, mental epilepsy. I have met with several epileptic children who presented peculiar mental attacks. For instance, a short time ago a mother brought a child of about 14 months of age to the clinic and gave the following history: For some time past the child had been having "peculiar turns"; it would cry under slight provocation at the top of its voice for several minutes and could not be quieted, its lips would become blue and then he becomes unconscious; there is no spasm of the limbs. While I was examining this little patient he had one of these turns. He cried lustily for a couple of minutes, then his lips became blue and he went quite unconscious. This condition lasted for one or two minutes then he woke up suddenly, stared around him and seemed dazed, tho did not cry. In other words, the fit of mental epilepsy was over. This child had many attacks like these during the day. He presented no signs of rickets or of laryngismus stridulus, or of any other spasmodic condition. Another case is that of a little girl of about five years, whose mother stated that she was quick-tempered and is constantly on the move and had "peculiar turns." Without any apparent cause the child's face flushes, she then gets into a violent temper and does not know what she is doing. She gets over this mental condi-

tion in about three minutes time when she is quite well again. Another case was that of a boy of about ten years of age, who takes epileptic fits and between the fits is constantly talking about killing Germans and prays for an hour at a time. I look upon this as mental epilepsy alternating with the major form of that disease. In these mental types of epilepsy I imagine that the nervous discharge must come from one of the prefrontal convulsions of the brain.

Another example was the case of a young girl of about fourteen years of age, who had been taking major epileptic fits for some time past. Between the fits she also takes "peculiar turns." She will look dazed and stupid for a short time, then suddenly makes an effort to climb a post or a tree, after which she will sleep for some time. This is not a case of hysteria, but one of mental epilepsy.

Treatment of Epilepsy and Convulsions.—The universal treatment of epilepsy during the past forty years has been the bromide treatment. Some use the potassium bromide, others the triple bromide. Some patients are given small doses, others receive heroic doses. One author states that the attack must be suppressed, if necessary, by the exhibition of as large a dose as 45, 60 and even 90 grains per day to a child of five years, and 120, 150 or 180 to a child of ten years, to effect a cure or even to produce a moderate improvement. I would state that it would not take long for this author to fit his little patients for the lunatic asylum. He also states that this dose must be continued indefinitely, perhaps with occasional short interruptions. Again he states that under proper medical supervision there is no danger and that further this is the unanimous opinion of all competent physicians. These doses, to my mind,

are not only dangerous, but also are fatal as regards the child's intellect. Sachs states that in epilepsy the only symptom that we can find in the interval are the effects of biting the tongue. The acne results from the bromide treatment and the general stupor and indifference are as often due to the drugs administered as to the disease itself.

I maintain that many cases—what percentage I cannot say—of epileptic insanity in children and adults are due to the prolonged use of large doses of the bromide salts. How does potassium bromide act on the brain? Sajous asserts that the primary effect of potassium bromide is to depress the functional activity of the vasomotor center and thus to cause relaxation of all the vessels provided with a muscular coat, the large central vascular accommodating more blood. The capillaries of all organs, particularly those of the brain and skin, are more or less depleted and the functional activities more or less lowered as well as its quieting influence on cerebral excitement. I may add that for a long time past I have held the view that potassium bromide causes cerebral anemia and that this anemia depresses the motor and intellectual centers, especially in the young child, with a corresponding amount of loss of brain development. Albertini states that it so obtunds the sensitiveness of the cortex that its electrical excitation can no longer provoke epileptiform convulsions. Another author states that larger doses of bromides cause anemia of the brain and anemia means loss of or diminished function of the organ. Schonten and DeFleury have found that even small doses of bromide lower the blood pressure and thought it was characteristic of the disease. Now I am convinced that the lowered blood pressure is produced

by the potassium bromide which has been given; the diminution of blood in the capillaries of the various organs impairs functional activity. Weir Mitchell and others have reported that the bromides produced melancholia. For some years past I have held the view that the bromides produced an anemia of the brain and thus a deficiency of oxygenated blood comes into contact with the structures of the brain. Now if the delicate and immature brain of the child with its sensitive centers and grey matter does not receive a sufficient supply of pure oxygenated blood, what may we expect? These centers are receiving thousands of impressions daily which are stored up for future use and I am certain that the development of the brain is interfered with by giving the child repeated and large doses of potassium bromide.

Granted that with this drug we can in a large number of cases of epilepsy arrest the fits, or produce a great improvement in their frequency, what about the development of the child's brain? Potassium bromide may stop the fits, but at what a great expense in many cases! I claim that the loss of memory and indifference and in some of insanity, is produced by the prolonged exhibition of the bromides.

Some years ago I realized that epilepsy and convulsions did not call so much for a sedative with its brain anemia, as for an antispasmodic, which would give a rich supply of oxygenated blood to the grey matter. The question now arises, which of the anti-spasmodics would be suitable for these cases? We all know what a valuable anti-spasmodic belladonna is in enuresis and in the spasm of whooping-cough. I look upon enuresis as nothing more than a "habit spasm" of the neck of the bladder followed by dilatation. This is central in origin. If

belladonna helps enuresis and spasms such as we find in whooping-cough, what effect would it have in the so-called habit spasm, such as blinking the eyelids, shrugging the shoulders, moving the lips, etc.? I may state that I have given belladonna to many patients who have had such habit spasms and they got perfectly well or were markedly improved in a few weeks time. However, I will refer to this later on.

I tried belladonna for the incoordinate movements of chorea and it cured many cases of the acute condition and I have treated two or three cases of the chronic condition with complete cure in every instance. In these cases I generally give it combined with sodium salicylate and soda bicarbonate. Many physicians stop the rheumatic treatment when chorea develops or when endocarditis supervenes, but I could never understand the reason why this is done.

Before leaving the spasmodic diseases, such as enuresis, habit spasm chorea with its incoordinate movements, I would like to say a word or two on the complexion of these little patients. Referring to my notes I find, where I have noted the complexion of these little patients, that in fully 80% there is blue eyes, fair or medium light skin and the hair light or medium in color. Dr. Still, of the Great Ormond Street Children's Hospital, London, noted the same in regard to rheumatism; in fact the lighter the complexion of the child who has rheumatism the more serious is the attack. In my own experience I have found that the most serious cases of rheumatism with grave cardiac troubles are found in red-haired children. In fact I have had three children die under my care during the past three years from rheumatism endocarditis and they all had red hair. Rheumatic nodules

always denote a serious condition with grave cardiac disturbance.

These children who have habit spasm or an enuresis are, as a rule, exceptionally bright in school. The pigment in the darker complexioned child would seem to have some influence in steadyng the nervous system. I may further add that enuresis is more common in girls than in boys.

If belladonna can cure or help local spasm, what effect does it have on the general spasm of epilepsy or of convulsions, and how does it act? For some years past I have claimed that belladonna in medicinal doses gives a rich supply of oxygenated blood to the brain and Sajous states that by its action on the sympathetic center it enhances the blood-propelling power of the arterioles. As a result the capillaries of the entire organism are traversed by a super-normal quantity of arterial blood, blood usually active in oxygenating properties. Spasms such as that of rheumatic torticollis, enuresis, etc., may be due to hypocatabolism in many instances by promoting the distribution of spasmogenic wastes, cause muscular relaxation (Sajous). Belladonna increases nutrition of the nerve cells and thus adds tone to the spongy grey matter from which the motor discharge arises. Sir William Gowers states that we must regard the function of the nerve cells as nutritional only and that we must regard the spongy grey matter as the part of the brain in which the nerve impulse arises under the incidence of other impulses to it and we must, therefore, look to this, and to this alone, as the place in which any alteration exists that underlies the phenomena of epilepsy.

I am inclined to believe that idiopathic epilepsy is due to a congenital deficiency in the nerve cell whereby its nutrition is

lessened and thus the nutrition of the grey matter and this denotes an unstable condition or molecular change in the grey matter of the brain. In a child the highest of controlling centers are the last to develop and add to this a congenital or hereditary deficiency, one can readily see it would not require a strong peripheral irritant to provoke a nervous discharge.

The Treatment of Idiopathic Epilepsy.

—This resolves itself into two classes: (1) The preventive treatment and (2) the treatment for the fit proper.

(1) The preventive treatment consists in removing all peripheral irritants, such as adherent prepuce, tape worm, adenoids, etc., and also treats premonitory signs, such as high temperature, constipation, etc. I look upon this as the most important part of the treatment provided we do away, or can do away, with the peripheral irritants and obtain a history of premonitory symptoms. The following history explains what I mean: Some time ago I was called in to see a child about eight months of age; he was taking convulsions daily. He was given potassium bromide, chloral, belladonna, etc., with no improvement. He required to be circumcised. This was done, all medicine stopped, and he has never had a convolution since the operation, eighteen months ago. In this instance a peripheral irritant acted upon an unstable condition of the cortex and there was a nervous discharge; in other words, a vicious cycle was produced. In many cases we found a history of premonitory signs or symptoms, such as flushed face, a dull appearance, twitching of the facial muscles, with facial irritability in others, high temperature or constipation. I always inquire for premonitory symptoms such as the above, especially in children, and in over 50% have they been present.

If the child is feverish or constipated I prescribe for a child one year old, phenacetine $1\frac{1}{2}$ grains, calomel 1 grain, white sugar 20 grains, divided into three powders, one to be taken every hour in milk, the child to be kept quiet in a dark room. For a child of five years, phenacetine 6 grains, calomel 1 grain, divided into three powders as prescribed. This treatment reduces the temperature, quiets the nervous system and produces a free movement of the bowels; in other words, the child is brought to a normal condition and the result is that the fit does not take place. I have many histories among my notes proving that this treatment has arrested convulsions or an epileptic fit. If one can accomplish this it is a great gain to the child as it tends to break up the habit. Every convolution or fit which is arrested when the cortical structure was on the point of setting free a motor discharge, tends to the recovery of the little patient.

(2) In the belladonna treatment for the fit proper, the following brief histories may be of interest:

Case I. Gertrude P., aged 10 years, came under my care on August 16, 1913, having had five fits during the past two or three weeks, four of the attacks being minor, the other a typical major attack. She was given belladonna at once and up to the present the child has had no recurrence of the trouble.

Case II. I saw Margaret D., aged four years, on November 27, 1914, having suffered from several epileptic fits. Here the results were exactly the same.

Case III. M. P., another case under my care, after treatment with belladonna has been quite free for the past two years.

Case IV. Another interesting case was that of an infant of 10 months who developed convulsions, was given potassium bromide, chloral hydrate, with no effect, the fits continuing some 50 or 60 daily. After the administration of belladonna it was perfectly well in a short time.

Case V. Another case was that of a child of two years and three months who came to my clinic on July 31, 1913, having had two fits, one in June and the other on July 18. He was placed on belladonna treatment and altho he had two more fits, one on August 25 and another in about eleven months time, he has had none since and is bright and intelligent.

Case VI. Charles E., aged two years and seven months, developed a fit on August 10, with a temperature of 103° . I administered phenacetine and calomel in addition to the belladonna treatment and up to the present time no recurrence has taken place.

Case VII. The following case is of interest as it demonstrates how a young girl of 12 years of age showed all the premonitory signs and was treated with phenacetine and calomel with the result that the fit did not take place. She had been quiet all day, then flushed with facial irritability; there was a marked tremor of the orbicularis muscle, slight twitching of the left arm and no doubt a nerve storm was pending. I put this child on phenacetine 8 grains, calomel 2 grains, divided into three powders, one to be taken every hour, the first powder being given before leaving the clinic. The result was the attack was entirely checked. Later on, by the same preventive treatment, the fit was again arrested so that the child escaped having two epileptic fits, which meant a great gain as every nerve storm arrested tends to break up the bad habit.

Case VIII. The next case is one in which I did not have a recovery; however, there was a marked improvement. E. K., aged six years, has been taking epileptic fits for over two years following an attack of whooping-cough. The attacks were frequent, one taking place every seven to ten days. In a short time the frequency lessened under treatment, but the child was not cured. I can imagine that the whooping-cough produced some change in the cortex, probably a slight hemorrhage took place and one could hardly look for a cure in this instance. In most other instances, where we have no known organic lesion such as hemorrhage in whooping-cough, we get a complete cure by giving the belladonna and if it does not act I arrive at the conclusion that the cause of the epilepsy may be due to some brain injury such as whooping-cough might produce, a slight hemor-

rhage into the brain, or the hemorrhage may date from birth. Altho these cases may not be cured I have had a marked improvement in many instances by the administration of belladonna.

At the present time I am treating a little girl of about four years of age who is mentally defective and who has been having fits every day. As long as she takes belladonna the fits are completely arrested. Some time ago I was called in consultation to see a child of about eight months old who had been having many fits during the past few days. I placed the child under the belladonna treatment and they stopped at once. Some time later the child developed laryngismus stridulus and the belladonna arrested this in about twenty-four hours.

The last case which I will mention is that of a young soldier who was under my care while medical officer with the First Quebec Regiment. This young man developed epilepsy, the fits being frequent; he had been taking large doses of the bromides without producing any effect and was discharged from the army as being unfit for service. I placed him under the belladonna treatment and he subsequently passed for the Navy and has had no fits since. Many other cases of cure by this belladonna treatment might be mentioned, but the above is sufficient to advocate its use.

Now the question may be asked, will belladonna cure all cases of idiopathic epilepsy? The answer is, "No." I have tried it in cases of chronic epilepsy of ten to fifteen years standing and have succeeded in reducing the fits, but these cases are not cured. I have also tried it in cases of epilepsy following injury to the brain at birth. In these cases the fits are lessened in frequency, but as we have destruction of a part of the brain we cannot expect to cure them. Belladonna lessens

the frequency of the fits and improves the memory and the patients become more cheerful and brighter. One cannot overcome the effects of chronic epilepsy plus the baneful influences exerted by large, prolonged doses of potassium bromide; it will not cure these cases.

Belladonna effects a cure in most cases of convulsions in children provided we do away with all source of peripheral irritation and that the convulsion is not caused by hemorrhage into the brain.

Further, belladonna will effect a cure in most cases of idiopathic epilepsy provided we get the case under our care before it becomes chronic and before the brain becomes saturated with bromides.

In every instance we should look for some premonitory sign or symptom which can be corrected in time to prevent a fit coming on. I have a young man under my care who suffered from epilepsy for about a year. He did well under the belladonna treatment, but about once a week a fit would come on in the morning while dressing. I added about 10 grains of potassium bromide, to be given only at bed time, and the result was that he had not one fit during the past year. The dose of belladonna in this instance cut off the baneful influence of the potassium bromide.

What are the effects of the potassium bromide treatment? *First*, it depletes the smaller vessels of the brain and produces anemia; *second*, bromide acne and other bromide rashes may be produced; *third*, loss of memory takes place, not produced by the epilepsy, but by large and continued doses of potassium bromide; *fourth*, a stupid look is noticed in many instances and, *fifth*, insanity is produced. It is generally held that this insanity is caused by the epileptic fits, but I am inclined to the belief

that it is induced by giving large and continued doses of bromide. So we can see that the bromide treatment has its disadvantages.

How does belladonna act? *First*, it gives a pure, rich supply of oxygenated blood to the brain as well as to the surrounding grey matter. It also, by increasing the circulation, does away with the toxines which may be present. *Second*, no acne is produced. We may have belladonna poisoning, but we do not require doses large enough to produce this. *Third*, the memory is improved. *Fourth*, the child is bright and shows increased intelligence. The mother tells me that the first thing she notices is that the child is so much brighter. *Fifth*, insanity is never produced in using this treatment in the proper doses.

I am not alone in treating epilepsy by belladonna, for several of my confrères in Montreal are using it at my suggestion and are having the same results. I generally use the tincture of belladonna as it is easier to handle and the dose can be regulated better.

In a child of six months I give one to three drops every four hours, or three times daily.

In a child of one year, two to five drops.

Two to five years, four to eight drops three times daily. This can be increased if necessary.

I have used belladonna for other spasmic conditions with gratifying results. Thus I have treated many cases of habit spasm with success. For example, E. T., a bright, blue-eyed girl of seven years, came under my care on July 24, 1914, with blinking of the eyelids, twitching of the mouth, etc.; I placed her on belladonna and by September she was quite well again. P. C., a child of twelve, had a persistent blinking

in both eyelids; this got quite well in a month's time. Vera I., blinking of both eyelids, moving of frontal muscles, constant for two or three months, got practically well in a short time.

Many of these children live in homes where they are constantly under irritating conditions and here the treatment is not so successful as long as they remain in an unfavorable environment.

With regard to the cases of chorea treated with belladonna, Lizzie E. developed three or four attacks of rheumatism complicated with chorea, under treatment with belladonna soda salicylates and entire rest was cured in six weeks. Another case was that of a boy of fifteen who had several attacks of rheumatism and chorea, the last attack continuing for many months. When I saw him the left arm, leg and face were involved and he had been taking arsenic up to thirty drops without improvement. In four weeks after starting the belladonna he was quite well with no recurrence. The third case was also a lad of fifteen who had several attacks of chorea, the last for a period of twelve months; arsenic had no effect. He took belladonna and was quite well in about four weeks time.

Dr. G. F. Still states that there are few diseases of children for which the medical attendant is likely to gain less credit than in these cases. Freedom from mental excitement and worry, including school work, a change of scene and air, will add materially to the obtaining of a good result. Fully 75% of these cases can be helped or cured provided the child can live in a quiet environment. Poor children do better in the hospitals and for those in better circumstances the child should be isolated.

During the past few months I have treated several cases of laryngismus stridulus with

tincture of belladonna and the little patients without exception were well in a short time. Two children developed convulsions some days before the laryngismus, one had albumin in the urine and four others had suppression, in one case persisting for twenty-four hours; this might be produced by a tonic contraction of the vessels of the kidneys. Belladonna is also useful in children who are habitually irritable and cross and who sleep poorly. In tetany also the infant will be quite well in a few days.

I claim that belladonna is the rational treatment of all spasmodic conditions such as epilepsy, convulsions, enuresis, habit spasm, whooping-cough, spasmodic-nutans, tetany and laryngismus stridulus. It is of use also in the treatment of chronic irritability of infants and in older children as well in incoordinating conditions depending upon lack of tone in the cortical centers and the grey matter of the brain, such as chorea, etc.

SOME REMARKS ON APHASIA.

BY

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Aphasia is a general name for diseased conditions of the brain which affect the patient's consciousness of words. In sensory aphasia the subject's hearing or reading of words is affected; in motor aphasia he is unable to speak or to write. In either case he may or may not know the meaning of words. The patient's speech, for example, may be unaffected and he may read perfectly, yet spoken words may seem to him like mere inarticulate sounds, or he may hear words and even understand them, he may speak and write and he may yet be

unable to read printed and written words, even those which he himself has written. These forms of sensory aphasia are named word deafness and alexia, respectively. Motor aphasia also has two main forms, inability to speak and to write. The latter is called agraphia and the former is named pure motor aphasia. In agraphia the patient reads and speaks understandingly; he can even read what he himself has earlier written, but he cannot write. In pure motor aphasia, a man understands what is said to him, reads printed and written words and can even write, but his speech is more or less seriously disturbed. He can laugh, cry and sing, but either he misuses words, one place or another, or he has no words at all or he speaks incoherently in what has been called a broth of unintelligible syllables. He may recognize his mistakes and be tormented by them, but he cannot avoid them. Sometimes it happens that the inability to speak affects only objects of a certain sense-class. For example, a man may be able to name the visual and tactile qualities of an object, but unable to name sounds of any kind; or he may be able to name colors and sounds, but not tactile qualities. Pure motor aphasia is known as auditory, tactile or visual, according as it affects one class of sensations or another.

It has been abundantly established that word-blindness or the loss of the meaning of words, is due not to the derangement of articulatory or word-hearing centers, but rather to the loss of connection between such word-centers and the visual, auditory or tactile centers of concrete images. The man who is unable to tell the meaning of the word "brush," tho he writes and articulates the word and rightly uses the object, no longer associates the motor or visual image of the act of brushing with the sight

of the word. This absence of the habitual association may be due either to the injury of visual or motor centers or to injury of the fibres connecting word-center with other centers. Normally the articulation center is closely connected with the brain-centers for concrete imagery, but sometimes the

us, a slight excitation of the sense-cells in the articulation center. This shows the importance of the Broca and Wernicke centers, and it indicates that the Broca center in the lower frontal convolution is not merely a motor center; in other words, that it is not concerned merely in the use of

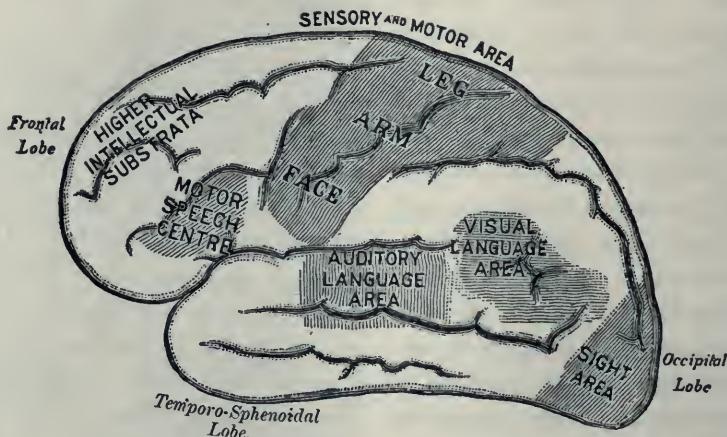


FIG. 1. Scheme of Localization in Cortex of Convex Surface of Hemisphere.

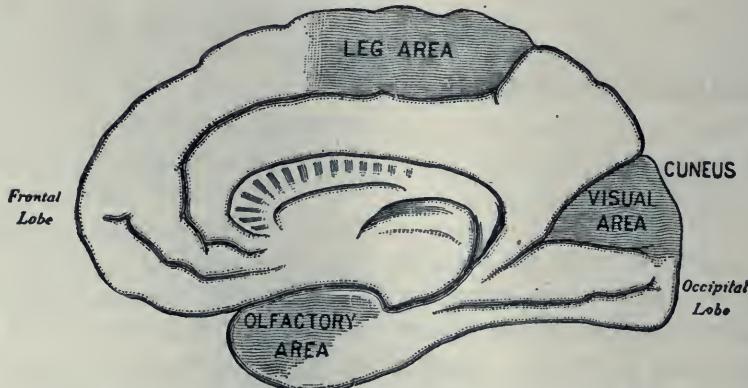


FIG. 2. Localization on Inner Surface of Hemisphere.

connection is utterly broken and again it is curiously altered.

The verbal image includes at least two parts: the sound of the word as heard and the consciousness of articulating the word. Even when we merely listen and do not actually speak aloud there is, for most of

speech, but that it is a sense center as well, excited during the word-consciousness of persons of the tactile-motor image type. Language by an educated person is read and written as well as spoken and heard. The word-sound often, therefore, suggests the image of the written or printed word

and it may suggest the movement of writing. The complete percept of a spoken word must thus include fused elements of sound and articulation.

Report of cases:

Case I. "What is the reason, Doctor," she said, "that everything in a book or newspaper is illegible to me? Last evening I sent an advertisement to the *Herald* for a waitress and when the girls came this morning I could not read their references. I then took up the *Herald* and found that I could not read a word in it. At first I supposed my eyesight had failed, but I

Case II. An example of the total loss of the power of recognizing words occurred in a hospital patient, but in him it was words that came thru the ears which he could not recognize, so that he had what is termed word-deafness. He was naturally an intelligent young man under thirty, a clerk in a mercantile establishment, and was supposed to have become insane because he talked only gibberish and, moreover, he did not seem able to understand what was said to him. It was soon found, however, that he could read and write as well as ever so that to all questions that were put to him in writing he wrote correct an-

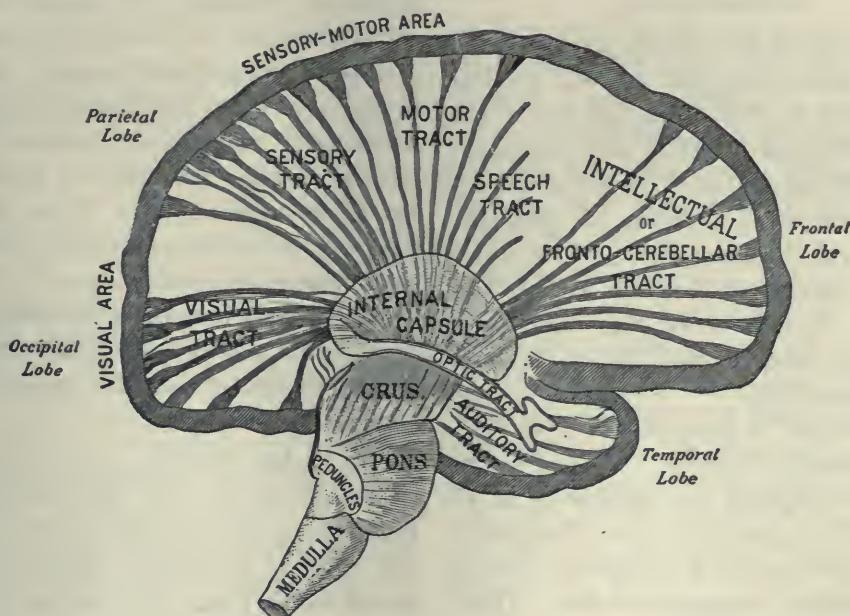


FIG. 3. Scheme of Position of Fiber-tracts descending from the various areas.

could see everything around the room as well as ever, and so also with my crochet work. I then opened the Bible, but could not read a word. What is the matter with me?" I at once recognized that she had been struck with word-blindness, as this affection is technically termed, and from that day to her death, two years later, she never saw a word. She had no other disorder of speech and none of vision. She heard every word that came to her ears and she could speak as fluently as ever, but no word could reach her consciousness thru her eyes.

swers. The reason he talked so incoherently was because he could not hear his own words and for the same reason all words addressed to his ears reached his consciousness only as sounds, but were otherwise as unintelligible to him as the words of a language which he had never heard.

Case III. A man retires to bed in good health, but is found in the morning utterly unable to speak a word. It is soon ascertained that he has no word-deafness, for he evidently understands everything that is spoken to him and that he has no word-blindness because he can read, but he may

not be able to utter a word, still less a sentence. In his distress he may make signs that he would like to write; it is usually found that he cannot find the words to express himself by writing any more than he can by speaking.

150 CASES OF OCCUPATIONAL DISEASE REPORTED IN NEW YORK IN 1918.

BY

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Washington, D. C.

According to the returns made by the hospital authorities and private medical practitioners of New York City, there was an incredibly low incidence of occupational diseases during the year 1918 in that municipality with its population of 5,047,221 (See World Almanac, 1919). The entire number reported to the City Health Department for that period was only 150—probably not a centesimal part of the cases actually occurring.

There are 6,379 physicians in New York City (Medical Directory). Hence, on an average, it required the cooperation of 42 physicians to report each case of industrial disease. But how is it possible to account for this wholly inadequate exhibit? There is but one candid explanation. The law is not executed.

Section 92 of the New York City Sanitary Code reads as follows:

"It shall be the duty of the manager or managers, superintendent or person in charge of every hospital, institution or dispensary in the City of New York to report to the Department of Health, in writing, the full name, age and address of every occupant or inmate thereof or person treated therein, affected with any one of the occupational diseases included in the list appended, with the name of the disease, within twenty-four hours after the time when the case is diagnosed, and it shall be the duty of every physician to make a similar report to the said Department within the same period

relative to any person found by such physician to be affected with any one of the said occupational diseases, stating in each instance the name of the disease."

"Arsenic poisoning, bisulphide of carbon poisoning, caisson disease (compressed air illness), carbon monoxide poisoning, dinitrobenzol poisoning, lead poisoning, mercury poisoning, methyl alcohol or wood naphtha poisoning, natural gas poisoning, phosphorus poisoning."

Eleven distinct kinds of occupational disease are enumerated in the foregoing official category. Too many or else too few! The list is not an exhaustive one, tho it purports to be a complete inventory of the recognized diseases of occupation. Yet with the text of this Code there is published a table of occupational diseases (certified to the City Health Department in 1918) in which were reported six varieties of industrial diseases that are not included in the Code schedule. The Code schedule, therefore, is inadequate, even for cataloging local occupational health hazards. In fact, it is impossible to make a complete list of occupational ailments, since their character is not well defined and their number is unknown.

The *Weekly Bulletin of the Department of Health*, City of New York, for April 5, 1919, records the fact that one hundred and fifty cases of occupational disease were reported to the Department during the year 1918. The cases were distributed as follows:

Disease.	Cases reported by Private Physicians.	Cases reported by Institutions.
Anthrax	0	15
Dinitrobenzol poisoning	0	1
Caisson disease	107	0

Copper poisoning	1	0
Lead poisoning	6	13
Picric acid poisoning...	2	0
Occupational neuritis ..	0	2
Sewer gas poisoning ..	1	0
T N T poisoning	0	1
Wood alcohol poisoning	1	0
	—	—
	118	32

From January 1 to March 31, 1919, the record stands thus:

Disease.	Cases reported by Private Physicians.	Cases reported by Institutions.
Anthrax	1	2
Lead poisoning	3	2
Mercurial poisoning ...	1	1
	—	—
	5	5

Concerning these data the Health Officer offers the trenchant comment, "The cases are so few as to indicate that many cases of such maladies are not reported as required by the Sanitary Code."

The *Bulletin* adds this importunity: "Physicians and institution superintendents are urged more fully to cooperate with the Department in future, and to promptly report all cases of industrial diseases coming to their attention."

Such appeals are impotent and unavailing. Something more virile than verbal remonstrance is requisite to meet the case of physicians who are guilty of laches and non-compliance with the law. Severe penalization of such negligence is impera-

tively demanded. To tolerate open violation of the statute is "worse than a crime; it is a blunder."

In order to render the Code effective it should be amended in two important particulars: *First*, a provision should be incorporated in the text for the payment of a nominal fee (25 cents, perhaps) to the physician for every case of occupational disease reported by him. This fee would reimburse him for postal expenses in making written returns to the Health Department.

Then the Code should impose penalties (fine and imprisonment) for wilful disregard of its requirements.

It is conceded that, in its present form, the Code is "a thing of beauty", the ethereal embodiment of transcendental morality and altruistic benevolence.

But compliance with its requirements levies tribute on the reporter by extorting from him the cost of postage, tho no penalty is incurred by ignoring the law. Thus the Code virtually offers a premium for its own nullification. It holds out no inducements and inspires no incentives to obedience, while it lacks the punch that ensures cooperation and penalizes dereliction of duty.

Purgation of Patients Before Operation.—Alvarez (*Surg., Gyn. and Obs.*, xxvi 6) considers this question and concludes that the body is weakened by the upset of the balance of salts, particularly where there will be vomiting and hemorrhage. There is an increased growth of bacteria and some evidence of an increased absorption of toxins and a tendency to flatulence and distention. The loss of sleep prior to operation is undesirable. The resumption of colonic activity is delayed and more difficult. It is suggested that food should be given as late as possible before operation and even enemas avoided, and purgation avoided after operation as well as before.

FREE MEDICAL ATTENDANCE AS A PUBLIC UTILITY—AN EXPERIMENT.

BY

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The maintenance of public health and the best method of promoting it, are receiving a great deal of attention not only among medical men but outside in lay communities.

Floyd Parsons says in a recent magazine article: "Tho the leaders of medicine today fully recognize that the doctors of the future must deal very largely with personal hygiene and preventive medicine rather than emergency treatment, this important change, like most revolutions in policy, will be brought about not by the medical profession, but by business men to satisfy the urgent needs of industry.

The new power of the working people alone makes it necessary that our present health ideals be changed. Only a few years ago there was not one employer in ten who believed that a company would be held legally responsible for each and every accident occurring to an employee in one of its plants. But this dream of idealists came true."

The medical profession here and abroad has long recognized the disadvantages of charging and collecting fees for services rendered those who are so unfortunate as to be obliged to call in the services of a doctor.

The present system is expensive, time-consuming, annoying and to the ethical physician, the hardest and most distressing part of his work. It brings him up against base ingratitude inherent in so much of humanity; it sometimes obliges him to charge for services he would gladly render

free of charge; it makes enemies, subjects him to the shafts of witless witticisms; it is wholly inadequate in securing for the doctor the money he has earned.

Most physicians, if not poor, are more or less troubled by financial matters, and they should not be expected to do for nothing. A large amount of practice their sense of sympathy will not allow them to refuse. The state should see to that. Nor should a physician have to accept a humiliating "remuneration" for his work-fees often less than those paid a plumber or an electrician. A physician will do an immense amount of medical and surgical work for a salary ranging from \$75 to \$150 a month, while the manager of a plantation may draw from \$6,000 to \$10,000 a year, or the bookkeeper and overseer, \$200 or more, a month.

The qualified physician should be paid by the state, county, corporation or the philanthropic associations. Not for work at \$1 per, but at a salary which a physician can accept without loss of self-respect.

Hospitals should be provided free to all. Not county or other eleemosynary institutions with the stigma of patronage about them, but places where all sick persons whether rich or poor, may receive medical treatment without money and without price. Dispensaries for indigents should be eliminated as such and maintained upon another footing.

As it is, patients with money seek the dispensaries, shamefacedly as it were, cheating the physician out of his fee; or the indigent come in proud necessity with a loss of self-respect.

A beginning has been made in England to subsidize medical service for the public good, but the error was committed at the start of demanding of the physician much work for small pay. It is true that the

best and most skillful physician works with enthusiasm in his routine of duty, and not for pay; but no physician can live and practice adequately without spending a great deal of money. It costs to qualify for the practice of medicine. It costs to secure and fit up an office. It costs to wait for patients. It costs for a car, expensive apparatus, good drugs, for journals and books, books, books. Even if patients fail to settle their accounts for a year, or do not pay at all, the doctor must pay promptly or lose his standing in the community.

Keeping accounts is an irksome part of

pected to so limit his practice. As a matter of fact, others "sponge" on him in one way or another. And the fact that he is a government physician induces a large number of persons to believe that he should not charge any one at all. As he must provide for his own living expenses, transportation, drugs and equipment for private practice, he cannot well live on his salary which does not take into account the small income derived from his private work. In some districts, plantation practice and pay help him out.

Upon consideration, one cannot blame the

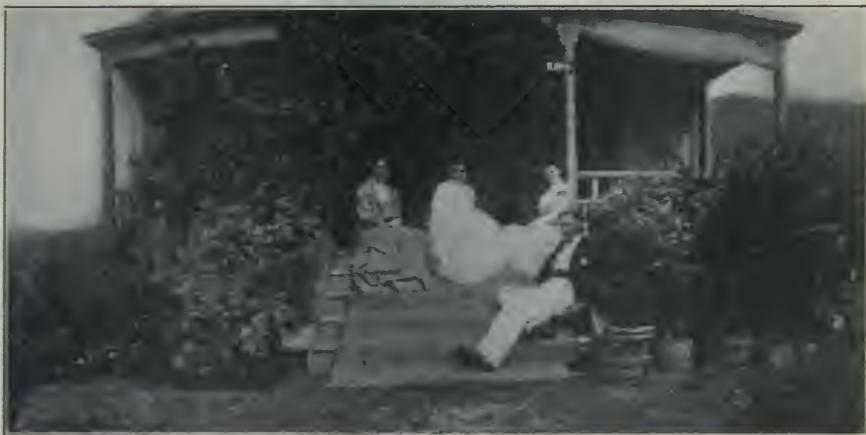


FIG. 1. Home of Dr. Goodhue, the Leper Settlement's Resident Physician.

the physician's work. He hates it. The country doctor's wife often has to be the bookkeeper and share the blame of sending bills, while in the offices of city doctors who have large practices, an accountant or secretary may be kept—but he is not much of a camouflage. After all, the doctor does the work and makes the charges—he is the one to get his fee out of the rich, or temper the wind to the "shorn" lamb.

To some extent the Hawaiian Territorial system meets the need for free medical service, limited, however, to indigent persons only. At least, the physician is ex-

pected to answer a call from physical distress anyway, at anytime, without expecting pay. While in one sense he is no more obliged to do so than the grocer should be made to supply the hungry family free, yet, in another, he is, and the human, altruistic factor comes in. It will always come in so long as sickness and death abide. This is one great reason why a physician's work and relations to his people should not be placed upon a common "business" basis.

The physician who expects to get rich or even well-to-do out of the practice of medi-

cine, is not a physician qualified well to serve his patients; he is a medicated drummer. That so many physicians become side-tracked financially is due largely to the fact that they have not cared to get rich; that they have given money matters little thought and therefore are not business men; that, in later years when their families and

have lived only to get the world rid of that evil upon which their material success depends—sickness.

In some districts where there are plantations or other corporations paying men at regular intervals, nearly everybody is able to pay the doctor well. But in isolated places like the island of Molokai, where few



FIG. 2. A Part of the Leper Settlement on Molokai. The Village of Kalawao.

living expenses make heavy demands upon their resources, they find themselves obliged to invest in some outside business (generally wild-cat) in a desperate attempt to meet their obligations. Had they qualified for and given attention to business, they would have been as successful as any others devoted wholly to the pursuit of selfish competency; but they did not. Instead, they

persons make more than is necessary to meet the ordinary living expenses, the present writer has realized that his services should be subsidized wholly. I felt that if I did not have to charge anyone at all, my work among those whom we are seeking to encourage in their care of their sick, would be enlarged, and my influence for good extended. It would save annoyance on both

sides. It would eliminate complaints due largely to unpaid and unpayable bills. Petitions against him are the Hawaiian government physician's bugbear. A patient gets along very well with his doctor until he owes a bill which he feels that he cannot pay. He begins by avoiding the doctor, then he fears, then hates him, and, finally, ends by sending in a complaint on some other ground, of course, than his indebtedness. It's quite a logical *sequitur*.

Thru the generosity and public spirit of the Board of Supervisors of Maui County, the Molokai Ranch, together with government appropriation for Territorial physicians, I have been able to eliminate entirely all charges for medical attendance or drugs. Of course my work has increased, but this I am glad to do. And personally to secure this freedom for myself and the people, I have been glad to bear my part of the cost of free service. It was felt that a few "able" to pay ought to pay, but I have insisted (and I think time has justified this insistence), upon the principle for all-free medical care for rich and poor. If the fact that they reside in this district and cannot pay for necessary services rendered them by the physician, disturbs them, they are free voluntarily to assist the doctor in his public charities, or, rather, duties.

On the whole, while necessary calls are greater, I find that every one is even more considerate of the doctor than he was before. The fact that the doctor himself is bearing a part of the burden of maintaining public health when he might be earning more in almost any other island field; that he stays here because he likes his work and people, meets with response. The officers of the county went in at the last election with good majorities; they will again. The ranch management is regarded not only

with trust as to fairness and consideration, but with affection by "all the boys." And it is expected that the Territorial bonus will be increased as to drugs and actual expenses of carrying on the "medical business," in good time. The county maintains free telephone service for all on the island. On the other side, between us and which rise the inaccessible cliffs of Molokai Leper Settlement, there are no charges for medical service administered by Dr. W. J. Goodhue. Here the lepers are wards of the Government, carefully guarded, treated, clothed, housed and fed.

Perhaps a word regarding the specific field of my endeavors might be interesting. Molokai, like its sister islands, lies within the tropics, with an area of 261 square miles. It is shaped like a shark, its face east, its dorsal fin due north. Upon this fin separated from the rest of the island by steep cliffs over 2,000 feet high, are situated the two villages comprising the Leper Settlement. Oahu on which Honolulu stands is about 50 miles distant and may be seen on a clear day. The island of Hawaii, also, southeast, Maui in the same direction about 17 miles distant, Lanai, south, and Kahoolawe, all clear and beautiful, cloud-capped and serene, from any point you look at them along the leeward side of Molokai. Halawa at the far eastern end is a beautiful valley with a famous waterfall and river. A good road winds down a nerve-thrilling grade to the few houses here. On west, over a splendid automobile road, we reach Pukoo, where the resident physician lives. Here are wharf, postoffice and a few stores. Mountains rising to a height of over 4,000 feet, and cut into by numerous picturesque valleys and ribboned by waterfalls, back the villages and road all the way to Kaunakakai, the principal port, situated about 28 miles

from Halawa. An automobile may travel the whole distance over a good road, thru lovely *kiawe* forests, by beaches and small homesteads, always in sight of some island, unutterable sea-colors and groves of palms. A little hamlet by the beach is where President Tyler's son lived and died. Old stone ruins are here and there, the ruins of a temple of stones built by Kamehameha the First, a cocoanut grove set out by Kamehameha the Fifth. From Kaunakakai the road turns inland to Kualapuu where the Molokai Ranch buildings stand. Farther on, is Kalae with its prosperous farm colony of one family of brothers, their wives and children. Here at an elevation of about 2,000 feet the air is delightful. There is a school as well as at the other villages. It is a part of the doctor's duty to see that these schools are sanitary and their children kept in health. A subsidized dentist and oculist make periodical visits. The numerous children of these hamlets I love, and they appear to be glad to see me at any time. I speak to them on various matters, now and then, health, their American citizenship, Lincoln, Roosevelt. It was my privilege to deliver a personal message to them (on another island) from James Whitcomb Riley a few months before he died, and some songs my daughter and I wrote have been set to music by a Hawaiian composer of local fame. One, *The Self-Same Star*, is very sweet and quite popular on all the islands; while another, *Our Hawaii*, is sung and played by the Leper Orchestra at the Leper Settlement. The schools, then, constitute an important part of my work.

The climate of the whole range from Kalae to Halawa is very salubrious and agreeable. Trade winds blow almost constantly, gentle showers fall, the nights are invariably cool. Fish are abundant in the

sea and ponds stretching from Maonui to Kaunakakai, the latter built by Hawaiians of unrecorded times. These ponds are enclosed by rocks following the reefs and contain mullet of fine quality. Cattle range upon a thousand hills. Where there is water, fruits and vegetables abound, and on the whole, residents of the island are greatly blessed by nature.

The homes are rather widely separated, and while the most of our residents are Hawaiians, there are a few Chinese, Japanese, Portugese and Whites. Honolulu is reached in four or five hours; Lahaina and Wailuku in two, by regular steamers.

Catholic and Congregationalist churches are numerous, and one or two Mormon societies. A live Civic Improvement Association attends to the public needs of the community. Plans are ahead for a free library, high school, hospital, band, baseball fields, a district nurse. My daughter is humane officer, and a special officer for child-welfare has just been appointed. The lack of money is the only thing that prevents our rapid development along such lines as I have indicated.

Cervical Sympathectomy in the Cure of Facial Neuralgia.—In the treatment for facial neuralgia deep injection of alcohol had given Pleth (*Amer. Jour. of Surg.*, May, 1919) the best results, tho pain returned in from nine to twelve months. In a few cases keratitis or even the loss of an eye had been observed. In performing the operation of cervical sympathectomy alcohol had been injected at all points of exit of the trigeminal from the skull; the inside of the foramen ovale had been avoided. It usually takes about three months before any definite relief is manifested. In one case where the injection had been made for facial neuralgia a previous neuralgia of the radial and ulnar disappeared.

THE PERSONAL, ARTISTIC, AND PUBLIC TRAGEDIES OF AN ARTIST'S EYESTRAIN.

BY

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When the tragedy of the painter Blakelock was brought to the attention of artists and art-lovers, I said to several friends and physicians that the clouding of his mind was undoubtedly caused by his eyestrain. And I awaited the proof of a second case whereby in some way I might, at least for myself, put the theory to the test.

I was recently surprised by the appearance in my office of a friend and patient accompanied by an elderly man, a distinguished painter, whose mind, it was evident, was in an abnormal condition. Early in life the man had typical migraine, with binding up of the head for headache, etc.; and there was the customary history of nausea and vomiting, "neuritis," and the rest. Several oculists were mentioned as having been consulted, and "others." There had been "little or no reading for years." The ophthalmoscope showed floating opacities and results of old hemorrhages in the vitreous. He "broke down" two and a half years ago. Altho he had not read for years, he had diligently painted many masterpieces that commanded high prices from connoisseurs. If his mind had permitted him to act the part of a good and obedient patient I might have given him more correct spectacles. I did the best I could to tide him over, hoping for some mental quieting and rest from work until I could make the refraction tests in the silent Woods-Home several hundred miles away. In the meantime he should rest, avoiding all work,

and sleeping, if possible, twenty hours a day.

So soon as I could I made the long journey, by automobile, to the patient's home and more accurately measured his errors of refraction. The distance-correction was found to be:

Right eye: +Cyl. 0.75 Ax. 30.

Left eye: +Sph. 0.62, +Cyl. 1.25 Ax. 180.

The usual presbyopic addition of Sph. 3 was made and bifocal spectacles ordered for constant use except when painting. But it was, of course, the eyestrain from painting that had produced the artist's ill health and to cancel this it was necessary to find what presbyopic lenses would be required. This would depend upon the habitual distance of the artist's eyes from the canvas, the landscape, sketch, the model, or the sitter, etc., and would demand the correction of his ametropia for distance by the same power-lenses that had been ordered for general use. But in painting this distance from his eyes to the canvas was several times greater than in reading, writing, etc. The combined length of the arm and brush would require a much less powerful lens than for ordinary reading, writing, etc. The conclusion was, therefore, that instead of an addition of 3 diopters, 1.25 would be found best to give clear vision and relieve strain. The upper or distance-parts of the bifocals were ordered smaller than the usual presbyopic segments and the lower or painting segments considerably larger than customary.

Soon came letters from the painter's wife and son that the man was "well—well and happy, and devoted to his art-work." The threatened disasters of several kinds—individual, family, public, art—were, and remain matters of the sad past.

AN AMERICAN MAKE-SHIFT: THE NUCLEUS OF FUTURE PUBLIC HEALTH HOSPITALS IN MONTE-NEGRO.

BY

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One of the most serious obstacles that confronted the American physicians and nurses engaged in civilian relief work in the Balkans was the lack of suitable buildings wherein they might establish hospitals of some permanency.

The building which was assigned to them at Kolachin, Montenegro, for instance, was a deserted Austrian "hospital," if it could be designated as such. It was a two-story cement house with few windows, with slab floors, thru which sifted chilling winds, with sanitary conditions unfit to mention, and with a pile of manure banked on the side. The patients who lay on the floor were pitifully and unspeakably filthy.

This was the "hospital" to which Miss Henriette Wiltsius was appointed as head nurse, ward nurse, surgical assistant and matron, and this was the condition which confronted her when she arrived at Kolachin, after a fourteen-hour trip by Red Cross camion, by horseback, by cart and by foot, in a blinding snow storm.

But Miss Wiltsius, being an American nurse, was equal to the emergency. She called on the interpreter to get women for cleaning and a carpenter, then things began to buzz. The walls were patched, new floors were laid, additional windows were cut in each room and an inside staircase built. Having accomplished that much she turned her attention and the carpenter's energy to the furnishings.

An old iron operating table, much too

low, and a few iron cots represented the entire stock in trade. Plank slats were laid across the cots and straw mattresses fitted to them, after which they were made up with Red Cross sheets and blankets and so became the acme of comfort to the natives who were accustomed to sleeping on mud floors.

But Miss Wiltsius did not stop there; washstands, bedside tables, linen closets and even chairs were designed by her and executed by the carpenter.

The operating room, which promised to be a stumbling block, developed into the pride, not only of the American unit and Kolachin, but of all the Balkan States, for it is the most perfect model in the country and the most unique, all the furnishings having been made entirely of Red Cross packing boxes. The old operating table was raised on a wooden stand and placed conveniently near were two tables for dressings; to supplement these were wall cabinets, stools and a clever three-decked stand for washing, all made of white pine and glaringly clean. And then there were the screens. "I'm really proudest of the screens," said Miss Wiltsius. "I couldn't make the interpreter understand what I wanted, so I hunted thru three magazines we had. In one I found the picture of a hinged photograph frame with three sides. I showed that to the carpenter. These regulation hospital screens with muslin panels are the result."

So today the little twelve-bed hospital at Kolachin stands as a beacon light in the heart of a country steeped in superstition and ignorance of medical science. To the Montenegrins, used to living in wooden slab lean-tos and stone huts without windows, its immaculate condition is a wonder, while the cures affected by the one doctor

and two nurses are looked upon as nothing short of miracles. On horseback and in carts, sufferers pour in for treatment from the surrounding country from as great a distance as fifty miles and patients on foot from nearer neighborhoods are regular visitors.

It may be that this make-shift hospital will be the inspiration of future public health hospitals in Montenegro. A Serbian general, who visited it recently said, "It is a remarkable example of American ingenuity. We must take this as an example. Our people are always complaining that they can't get materials. We have the wood, but we apparently haven't the sense."

But before the Montenegrins can establish worthwhile hospitals they must of necessity train doctors and nurses to man them. A country with 100,000 inhabitants with but four doctors and practically no trained nurses is a serious proposition and it seems as if outside supervision will be imperative for some time.

Before the American Red Cross went into the Balkans neither the practice of medicine nor nursing was taken seriously. Unskilled women of the lower class clattered about their hospital duties without any kind of supervision or training and were never in any way encouraged to become efficient; while native "flocbers," men and women who had picked up a smattering of medicine as they went along, and were little more than healers, treated the most serious cases.

From this it appears that the most vital factor in the work of the American Red Cross unit in Montenegro is not the dressing of a certain number of wounds or the treatment of a certain number of medical cases, but the awakening of these unskilled workers and others interested in medicine,

to a realization of the necessity of medical training. It is only in this way that the mass of people will be reached and educated to the need of better sanitary conditions, as the first step in the prevention of disease.

The same problem, tho in milder form, of unhealthy sanitary conditions exists in isolated districts of our own country, where doctors are scarce and nurses are almost entirely absent. The Red Cross proposes to combat this by the establishment of the Public Health Nurse in all rural districts as she is now established in all cities of 50,000 or more inhabitants. The nurse will cooperate closely with the over-worked country doctor, making regular rounds among the farmers, helping their wives with the care and nourishment of their children, planning simple home hygiene methods and when necessary nursing members of the family back to health. It is hoped in this way that thousands of infants, and mothers who die in childbirth each year will be saved, and that great strides will be made against tuberculosis and other diseases.

DRINK, AN EFFECT, OR A CAUSE, OF CRIME?

BY

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Some parts of an able article on "Science and Alcohol" in the May number of AMERICAN MEDICINE, struck me a little strangely. And at the risk of being thought foolishly presumptuous in questioning both specialism and other well-proved ability, may I call attention to two of them? *First*, the suggestion that "drink is more a blessing than a curse," preventing worse evils as "over-

eating" and the "use of drugs," which do not appear to most of us to be worse evils. When we read in the papers that a man has been beating his wife, committing arson, or murder, or has got into jail or prison, we do not commonly read that he had been over-eating, or had been eating hashish or opium, but that he was under the influence of liquor. The government is now greatly inconveniencing every doctor in the land over the matter of drug addiction, which hardly has any relation to crime, but which governments are organized to prevent. Medicine supports the government in this, but when it strikes at alcohol, as it should strike if alcohol is the criminal, then it is said government is not minding its own business.

Justice Field, of the U. S. Supreme Court, in the case of *Crowley v. Christensen*, 137 U. S. 86, 11 Sup. Ct. 13, recently found as follows:

"By the general concurrence of opinion of every civilized and Christian community there are few sources of crime and misery to society equal to the dram shop....The statistics of every state show a greater amount of crime and misery attributable to the use of ardent spirits obtained at these retail liquor saloons than to any other source.

"The injury, it is true, first falls upon him in his health, which the habit undermines; in his morals, which it weakens; and in the self-abasement, which it creates. But, as it leads to neglect of business and waste of property and general demoralization, it affects those who are immediately connected with and dependent upon him."

If the supreme court is correct in this statement, then is there scarcely anything else so important for it to do as to deal with "the alcohol jag." And if for this should be substituted the "food jag" which mostly ends with self, instead of misery inflicted on others and self, by crime, it would seem to use, unsophisticated folk to

be a lesson, and not a worse evil.

When we take alcohol into the system we ingest a liquid utterly different from any fluid in the body or in any ordinary food. The liquid of the blood, of milk, of coffee, tea, lemonade, etc., is one; it is water, chemically H_2O , three atoms to the molecule.

Ethylic alcohol is C_2H_6O , nine atoms to the molecule. Its specific gravity or weight compared with water—1000, is 792. It boils at 172° F., water at 212° F. It burns in air, water does not. It can change to acid, its taste is biting. It circulates in the blood and is eliminated mainly as alcohol, about as foreign to our physical economy as any liquid can be.

"Attack the vicious use of alcohol and preserve its harmless employment." Is not this latter just what governments do when they allow its use in medicine?

Second, the idea that the hard drinker is usually of natural criminal tendency seems to me a hard saying. The naturally criminal people are comparatively few and are defective. "Hamby," on trial in New York last June, was declared by experts to be a natural criminal, a defective. Many of us have personally observed the gradual growth of appetite, beginning with indulgence and going on till it becomes a dominating disease, a tyrant that degrades and then destroys its victim.

I have personally known authors of ability, physicians, business men, lawyers and a few judges even, on their way downwards toward the rapids, in their advanced life. Some have been temporarily rescued by some "cure."

The sight, smell or taste of liquor again awakens the demon of desire in them. "Excellency leaves them, to re-enter when rum is out."

"When the wine is in, the wit is out," the proverb says. Have the great of the world been all mistaken in supposing that crime was the effect and not the cause of drink?

Shakespeare said: "O that men should put an enemy in their mouths to steal away their brains! That we should with joy, pleasure, revel and applause transform ourselves into beasts!"

"O thou invisible spirit of wine, if thou hast no name to be known by, let us call thee devil."

AN INTERESTING CASE OF REMOVAL OF THE APPENDIX THRU THE VAGINA.

BY

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Roswell, N. M.

This patient was a woman 37 years old and the mother of three children. She was referred to me by her physician because of an intractable uterine flow. For this condition no explanation has been found, there was no indication of cancer. A curettage had been without any effect. After getting the history of the case, of what had been done medically and surgically for her relief, from the fact that she suffered a great deal of pain, that her health was being undermined by the frequent and great loss of blood, I advised hysterectomy.

This advice was accepted and the operation decided upon, but as there was no bleeding of consequence at this particular time, the patient wished to postpone the operation. About a month later, however, she developed a very severe pain in the pelvis. On examination I found the uterus excruciatingly tender, the least movement or

touch caused the greatest pain. As no explanation could be found for this condition, immediate operation was advised. The operation was begun and very little difficulty found in getting the organ out, but on careful examination before we finished the operation we could find no explanation for the pain. I made a further investigation and found a very large appendix, highly inflamed, full of pus and evidently it had been in contact with the uterus. By a little manipulation I was able to bring it down until I could see the cecum, when, by the aid of two clamps, it was ligated. A clamp was then put on the base and the appendix was excised and removed without rupturing it. It was very long, probably seven inches, and at the distal end as large as the end of a man's index finger. There was no bleeding, the mesentery was very small, so that one ligature controlled it all, the stump was released, the clamps put in position and a packing put in.

The patient made a perfect and uninterrupted recovery and has never since had any trouble from either the appendix or anything in the pelvis. I have not been able to find in the literature any account of the removal of the appendix by this route.

A SANITARY CORDON TO CHECK THE SPREAD OF TYPHUS IN POLAND.

One of the prime recommendations of the Inter-Allied Medical Commission sent to Poland late last summer by the League of Red Cross Societies, was the establishment of a "sanitary cordon" to prevent the typhus epidemic which is ravaging that country from spreading to western Europe and even to America. Famine, overcrowding and the continued influx of infected returning refugees and prisoners of war have sown typhus all over the country; even during the

summer months the epidemic has not ceased; and with the return of winter, with bad living conditions and increased opportunities of infection, a much more serious situation is to be faced.

In the ordinary sense, the term "sanitary cordon" is used to signify an attempt, by strict military and police methods, to maintain a comprehensive medical control over the entry of every person thru the frontier, to secure as a routine the medical examination of every such person, and his disinfection, detention in quarantine, certification, etc. Such a cordon is not advisable in Poland at the present time, principally because the disease was already spread practically all thru Poland west of the proposed line, and is also widely prevalent in regions to the south of the country.

There is a sense in which the establishment of a cordon would be of the greatest advantage, and indeed almost indispensable for the handling of the situation. This consists in the establishment, on the main routes from the East on which refugees arrive *en masse*, of stations where they can be individually examined, disinfected and when necessary sent to hospitals or detained as "contacts"—meanwhile being fed and cared for. From such a point of view the sanitary cordon resolves itself into the establishment of only some half dozen main observations to deal with the main stream of refugees. Other developments of the system, such as supplementary disinfecting stations, may be added if necessary. A useful check might be afforded by the issue of "sanitary passports," or certificates to those who have passed the medical tests and have been cleansed and disinfected. These would be demanded by the authorities at the ultimate destination and those without passports would be placed under observation.

The conditions are in some respects very favorable to the proposed system. West of the proposed line of observation are a considerable number of foci over a wide area, with two or three small areas of intense infection. These occur in a nation which already possesses organized civil and military sanitary departments which are being assisted by such agencies as the American Red Cross. On the other side of the line is a vast area without any civilized form of government or health organization, incident-

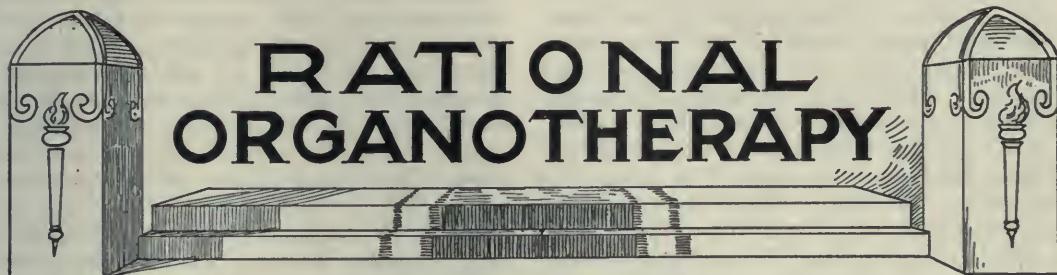
ally containing one or two million people trying to get into Poland. There is a state of war and the frontier is guarded by a large and efficient military force, distances between cities are great and lines of communication few. Refugees and prisoners arrive in a destitute condition and are consequently attracted to places where food and clothing may be secured; and while individuals may pass thru undetected, it should not be difficult to direct all the principal streams toward equipped stations on lines of communication.

In the countries north, south and west of Poland the conditions are not so much worse than those in Poland as to encourage immigration, even if the military situation allowed of such a drift; on the other hand, it is estimated that in Russia there are from one and a quarter to one and a half million Poles and Russians who will cross the proposed cordon within the next few months, and it is probable that the drift, tho diminished, will continue for years.

The risk to other countries from a severe epidemic condition, if serious, is encouraging. In spite of the fact that the country has been free from invasion and organized only a short time, and that she is without resources and engaged in warfare to preserve her existence, there is an excellent health organization in both civil and military areas. She needs only a small amount of additional material and personnel to make this organization what it should be.

Realizing this, the American Red Cross has recently appropriated \$2,000,000 for relief operations in Poland till spring. It has now a commission of over one hundred persons at work in its large bases at Lwow, Warsaw, Bialystok and Cracow, and with the eleven mobile relief units in the field. "I do not know what we would have done without the Americans," said Premier Paderewski recently, in discussing the joint operations of the American Red Cross and the American Relief Administration. "I thank you from the bottom of my heart."

Hemorrhoids.—Acute hemorrhoids developing in women during pregnancy are often cured by moderate, careful dilation of the sphincter at the time of delivery.—Drueck, *Medical Standard*.



The Pituitary in Diabetes Insipidus.— Extracts of the posterior lobe, or *pars nervosa*, of the pituitary structure provoke an unmistakable change in the secretion of urine when they are introduced directly into the circulation, says an editorial writer in the *Jour. A. M. A.* (Nov. 22, 1919). This renal effect has been compared to the secretion-promoting effect exerted by extracts of the duodenum on the pancreatic cells. Because of such experimental observation the pituitary has been assumed to exercise a regulatory influence on the functions of the kidney. Such reasoning, often applied in connection with the ductless glands, has grave limitations and is rarely conclusive. As a recent writer has remarked, it is by no means logical to assume or infer that the functional importance of an organ is demonstrated by the properties of an extract of it. If one applies such an argument to the galactagogue substance in the pituitary of a fish, the absurdity is obvious.

Other evidence for the functional interrelation of kidney and pituitary has been sought in the domain of pathology. In the chronic polyuria most frequently referred to as diabetes insipidus, involvement of the pituitary, particularly of its junction with the brain, has been demonstrated repeatedly at necropsy; in fact, there are no records in which the pituitary was examined and found to be perfectly normal. Experimental pathology, by damaging the structures in the neighborhood of the posterior lobe of the pituitary, has frequently produced abnormalities in the flow of urine. Polyurias lasting from one to six months have followed the artificial lesions; yet such results have been exceptional and attained only by chance, apparently.

Kennaway and Mottram of the Middlesex Hospital, in London, have added clin-

ical evidence to the problem of pituitary function in connection with the kidney. The antidiuretic effect of pituitary extract, given by subcutaneous injection was demonstrated both in a normal subject and in a case of diabetes insipidus. Administration of such preparations by mouth is ineffectual. It has been suggested that the antidiuretic effect is due to diminished absorption from the bowel so that less water is available for secretion thru the kidneys. If we may trust the evidence of Konschegg and Schuster, however, the effect is rather attributable to direct action on the kidneys. Kennaway and Mottram maintain that the immediate restoration of a normal state of the urine when pituitary extract is administered in diabetes insipidus provides the strongest evidence for the normal activity of the gland in regulating the secretion of urine. We must confess, however, that in view of the contradictions in the literature of the subject and the indirect nature of both clinical and experimental evidence, it would be far-fetched to maintain without reserve that disorder of the pituitary is in all cases the cause of chronic polyuria. Injection of pituitary extracts now appears to be the most effectual mode of treatment. However, every day obvious examples of the limitations of such a procedure are encountered.

Action of Strychnine upon the Output of Epinephrine from the Adrenals.—

According to Stewart and Rogoff (*Journal of Pharmacology and Experimental Therapeutics*, May, 1919) strychnine causes a marked increase in the output of epinephrine from the adrenals. Outputs ten times the original amount were observed in a series of experiments on dogs and cats. The increase persisted for a considerable time.

When the last adrenal sample was taken, usually an hour to an hour and a half after the strychnine injection, the epinephrine output was still, as a rule, notably augmented. Indeed with the smaller doses the output was sometimes greatest at this time. Doses of strychnine well within the therapeutic range, which caused little or no exaggeration of reflex excitability, produced a considerable increase in the output. The animals being necessarily well anesthetized, it is supposed that still smaller doses would suffice in non-anesthetized animals. Indications were obtained in some experiments that the stage of prolonged increase of the output, which constitutes the principal action of the drug, may be preceded by a transient diminution; this was best seen with the smaller doses and upon subcutaneous administration. No evidence was found that under strychnine the possible normal maximum concentration of epinephrine in the plasma—something like one in 500,000—can be increased. In spite of the greatly increased output caused by strychnine, there was no evidence that the epinephrine store of the adrenals is distinctly diminished even by the prolonged action of the drug in large and repeated doses. The accumulation of epinephrine in the glands is therefore increased as well as its liberation. This is what occurs during stimulation of the splanchnic nerve, except when intermittent stimulation is continued for very long periods. It corroborates other evidence that the strychnine effect is produced by an intensification of the secretory process thru the nervous mechanism which normally governs it, and not by a direct action on the adrenals.

Suprarenal Insufficiency.—Sezary (*Presse Medicale*, Sept. 22, 1919) classifies suprarenal insufficiency under three headings: the fulminating, rapidly fatal form; the monosymptomatic form (myasthenia or amyotrophy), and the form inducing a whole set of symptoms: acute (syndrome of Sergent-Bernard); subacute and slow (Addison's disease and its varieties). Tuberculosis may induce any one of these "syn-dromic forms" of suprarenal insufficiency, and syphilitic processes often locate in the suprarenals, as also those of diphtheria, typhoid and other acute infections. Specific

treatment should be given when such is possible, antitoxin with diphtheria, for example, or quinine with malaria. Rest and suprarenal treatment are useful whatever the infection, but he prefers the extract of the whole gland, and given by the subcutaneous route. He reserves epinephrine for acute disturbances with collapse of the heart, and recommends the subcutaneous route. He gages the dose by the therapeutic results obtained with the first doses and by the signs of intolerance. A rise in the blood pressure is a good index of the efficacy of the opotherapy, but the fact that it does not rise does not prove that the treatment has been ineffectual. A still more instructive index is the finding with the dynamometer showing the variations in the strength of the muscles tested fifteen and thirty minutes, one hour, three hours and so on after the injection of the suprarenal extract. When these two tests show a favorable influence from the suprarenal treatment, he keeps up this dose, not increasing it until the effect grows less pronounced. The appearance of tremor calls for caution; glycosuria, albuminuria, circulatory disturbances require suspension of this treatment. In some cases the doses have to be high and kept up for several weeks or even months before a good result is obtained. Signs of intolerance should be watched for with special care in these circumstances. Sometimes addition of pituitary will give surprisingly fine results when the suprarenal treatment is a failure. With cheesy tuberculosis and cancer, the knife is still the ideal treatment, possibly resecting only the pathologic tissues and leaving the rest intact. But in order that this can be done the disease has to be diagnosed early, and it is to be hoped that the progress of medicine will soon render this possible.

Antithyroid Treatment of Menorrhagia.—Weil reports a case in the *Bul. de la Société Medicale des Hopitaux* (July 4, 1919) in which uterine hemorrhages had kept up for twenty-five days each month for a year. The woman who was 30 years old had only 2,000,000 erythrocytes and 40 per cent. hemoglobin, while the blood took ten minutes to clot. The gums also bled readily but there were no personal or hereditary

hemorrhagic antecedents. The woman had a small goiter but no other signs of exophthalmic goiter. He gave tentative organotherapy with thyroid, suprarenal, pituitary and other organ extracts, and tried iron and arsenic—all to no avail. Then he changed to what he calls antithyroid treatment, and a complete cure soon followed. He used for this three teaspoonfuls a day of a glycerin preparation of the blood of goats thyroidectomized over a month before. The literature records the cure by this means of a persisting and recurring hemorrhagic pleurisy in a case of exophthalmic goiter, and the arrest of severe menorrhagia in one woman, a virgin. The hemorrhage-reducing power of this antithyroid treatment seems to be restricted to the genital sphere and complex endocrine disturbance. Raymond has reported a case in which thyroid treatment improved myxedema in a woman of 48, and seemed to cure completely a tendency to multiple-recurring hemorrhages.

Pancreatic Extract in Gastric Cancer.—Loeper (*Progres Medical*, Aug. 30, 1919) has been giving pancreatic extract intravenously in the treatment of gastric cancer, and he reports five out of the series of cases in which this has been done, discussing the theoretical bases for it. The results seem to indicate that this treatment has a decidedly favorable action on certain of the symptoms from gastric cancer—"I do not say on the cancer itself." The weight increased in all, the number of erythrocytes increased and the antitryptic index showed higher values in two of the four patients tested. In the cancerous it acts the same as in healthy subjects and in dogs, increasing the antiproteolytic power of the blood serum and the resisting power of the blood corpuscles. The general condition improves and the resisting power of the organisms is enhanced, including the special defensive reactions against the cancer products.

The Treatment of Thyroid Intoxication.—In a case of goiter, reported by Dr. Joshua H. Leiner (*N. Y. Med. Jour.*, August 2) in a Russian woman, thirty-four years of age, the Forchheimer's treatment,

with quinine hydrobromide and ergotin, caused a slight improvement in the thyrotoxicosis. It is needless to state that the dietetic and hygienic surroundings received suitable consideration.

When this treatment was stopped a relapse occurred, the symptoms of which as far as they were manifested in hot flushes and tremor, yielded to ovarian extract. When decided symptoms of relapse became manifest this patient was given five-grain doses of thymus extract three times daily thru which a decided improvement had become evident two weeks later.

Doctor Leiner mentions that, in case of exophthalmic goiter, the thymus likewise undergoes a hyperplasia; and altho theoretically the feeding of this gland is contraindicated, clinical experience teaches that beneficial results have followed its administration.



PARAGRAPHIC REFLECTIONS.

BY

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Medicine That Knows Its Place.—"Nature can do more than the doctors", said Cromwell on his death-bed, according to his secretary, Thurlo, as cited by Voltaire. Molière makes a sly old fox of a doctor say to his colleagues, "Let us be in accord around the sick, that we may attribute to ourselves the fortunate outcome of disease, and cast upon nature all the blunders of our art". Again, a cynical layman he has declaring, "Almost all people die of their remedies, and not of their maladies". So from hieroglyph to stereotyped page, thruout literature criticism and satire have thus differentiated recovery, from cure, assigning to the latter a relationship auxiliary and subordinate. In spite of this, however, a certain class and proportion of physicians perennially persist in maintaining toward disease states a general spirit and

manner of officiousness which, plainly and frankly, is sheer meddlesomeness. Medicine that knows its place and powers, how fine, how efficient! But medicine that presumes and trespasses and usurps, how impertinent and pernicious! The invariable, routine procedure of "pulling patients thru", as frequently manifest, would be ludicrous were it not perilous. How some doctors *save life* is superlatively staggering! Even in childbirth, a process simple, natural, universal, the same tendency and practice are too often evident. Not a rarity is the doctor who performs as tho he considered child-bearing an operation incumbent on himself and the woman jointly; who simultaneously with her goes into labor, rivals her efforts, and carries off the lion's share of the credit and glory: Contemplating the case as it progresses, one might only repeat the appeal of Henry V to his soldiers—"Once more into the breach (breech), dear friends, once more". In the name of great Hera, let the woman have the baby. "Baby-bearing" doctors are a farce and a nuisance.

son of New York some years ago gave a sane word of warning and advice along this line with reference to heart disease. The caution is especially significant now-a-days as directed toward blood pressure findings. To discover in a person a critical blood pressure, and then subject the person to extra risk of apoplexy by an oracular, unvarnished, solemn, portentous announcement of the fact, is, to say the least, short sighted and reprehensible practice.

Neglecting the Pulse.—The sphygmomanometer having been brought into question, it may be stated that the instrument is not an unqualified boon. It does, truly, furnish a delicate and precise test that enhances exactness and certainty in the determination of abnormal conditions and in the diagnosis of disease processes. It is an acquisition of real value, and its importance in the field of investigation of body states and body functions should not be underestimated. A flagrant misuse, however, is its indiscriminate, ostentatious, ominous employment in the case of sick people. A positive evil is routine, mechanical, absolute, servile dependence upon it to the exclusion or neglect of study of the pulse by palpation. To the deft, keen physician the pulse tells much more than the sphygmomanometer can tell. Says Galen, "The science of the pulse is difficult; it exacts of him who wishes to acquire it a great attention of mind and an extraordinary talent for observation". This is eminently true. And altho Galen authorized in the science results undue, even preposterous, in his enumerations and classifications clearly verged upon the fanciful and whimsical extremes reached by the Chinese *savants*, yet, nevertheless, the pulse does, indeed, show many phases and many combinations. In fact, no two pulses are exactly alike.

How Much Should the Patient Be Told?—The end of medical treatment is to get one's patient well—"tuto, celeriter ac jucunde", after the aphorism of Asclepiades of Prusa as paraphrased by Celsus—"only this and nothing more". The pathfinder Bartholow was wont to distinguish and emphasize the idea by reiteration of his own clearly coined and deeply relevant phrase, "therapeutic diagnosis". The expression reveals peculiar force and pregnancy as used in contradistinction to the academic diagnosis of the Skoda school. No; not to vindicate one's judgment nor to exalt one's self as a medical scientist, not to exhibit and illustrate professional proficiency and consistency, not to demonstrate personal competency and dexterity, not even to avoid "*le crime de lèse Faculté, qui ne se peut assez punir*" of Doctor Purgon, not primarily for any of these purposes, but to help his patients get promptly and thoroly well, should one manage his cases. This the attendant should be courageous enough and magnanimous enough to do. In pursuance of such a course one will learn to keep his own counsel. You can never get a sick man well by telling him he is likely to die. Thomp-

The Pertinency of Common Terms.—Quite noteworthy is the degree of correctness and pertinency oftentimes pertaining to the classical names in common use for pathologic and physiologic manifestations. Not infrequently such designations are ideal. There is the term "lung fever", for

instance. It is old—older than bacteriology. Still it stands accurately and forcibly for an acute infection as definite and specific as typhus or typhoid. Then, again, take in example the expression "change of life". How graphically, how pointedly the phrase indicates and accentuates those profound modifications and alterations occurring at the climacteric equally in the circulatory and in the nervous system of a woman, those two of the component parts of the corporal organism so intimately connected with, and so wholly essential to, life its very self!

might be reasonably urged, still the extreme lengths advocated, altho feasible, cannot logically be necessary to effectual action. Sears, following Schick, maintains that the dose of diphtheria antitoxin should be graduated to the standard of body weight. That proposition has the ring of good sense. It simply implies the application of a generic principle. In short, there is a "too little" and a "too much" involved in the antitoxin problem. A key that ever fits and never fails is the Ovidian legend, "*Medio Tutissimus ibis*".

Have We Mastered Diphtheria.—We thought that thru antitoxin we had the mastery of diphtheria—that we had conquered, subjugated the disease beyond peradventure. And the confidence was most satisfactory and comfortable. Then along came certain leaders with an assertion and a protestation. We were told that we had been using doses of the specific unreliably, if not impotently, small; that amounts astoundingly larger were not only permissible, but actually demanded—amounts really prohibitive in general practice from considerations both of availability and cost. These utterances have borne the hall mark of authority, truly—carry the sanction of special study favored by unexcelled opportunity. But there is involved in the question a logic inevitable, inflexible, inexorable. And dialectics constitutes no specialty in medicine. Indubitably fruitful is the experimental method. To be fully trusted, however, it must be of the character of "*l'empirisme rationnel ou philosophique*" of Renouard. Now applying the rule of reason to antitoxin dosage, it would appear that, if the enormous quantity suggested is indispensable to therapeutic effect, then are the amounts ordinarily administered ineffectual, futile, in which case either our observations have been faulty, or we have been again led astray by that arrant false guide, "*post hoc ergo propter hoc*". And, if such downright error may have been accepted with reference to the smaller dose, why may it not likewise occur in the estimation of the results of the huge dose? But, if not radically wrong as to the potency of the usual treatment, then, while some enlargement or reenforcement of the same

The Traditional Ills of Childhood.—A violation of the traditions of childhood that smacks of profanation is the warfare waged by preventive medicine against childhood's own diseases so called. A picture of those early days minus mumps and measles and whooping-cough, if not distorted and denaturalized, at any rate could not be reckoned orthodox! Seriously viewed, the acute infections more peculiar to the age of growth can, of course, be headed off and kept within bounds. But can they be completely and finally rounded up? Can they be eradicated? And, for obvious reasons, the milder the malady, the more difficult its repression and suppression. Chicken-pox and small-pox are ungovernable respectively in inverse ratio to their respective virulence. Then there is the further question of the wisdom of the policy of assisting to protract liability to these minor infections into mature life, where they are likely to be more severe and where days spell dollars, when with small risk, at a time that in no way presses, enduring immunity to their recurrence may be acquired by squarely facing them instead of evading them. Does the adult regret having had mumps and measles in childhood? A hardship, a handicap, a plague—is it to be dodging mumps and measles when duty urges and fortune beckons? Still another consideration should not be overlooked. May it not be that the very mildness of type characterizing these diseases of childhood under discussion, and which reduces to the minimum their importance as to suffering and danger, may it not be that this marked mildness is due to partial immunity gained by the process of

transmission from generation to generation of a lowered or declining susceptibility? May we not thus be the beneficiaries of an hereditary attenuated liability? The ravages wrought by certain ordinarily not fatal infections among races to whom they had priorly been unknown lends color to the theory. If partial immunity can be progressively attained, why could it not be retrogressively influenced and modified? Some day there may be told a mournful tale of immunity won and lost.

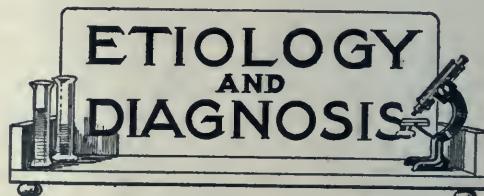
THE DOCTOR MUSES.

I am the first
To welcome you
Into the world.
I listen anxiously for
Your first feeble wail
Announcing your arrival.
As you grow, and develop,
All your baby ills
Are carefully considered
By me.
Even the first
Little tooth
The pride of fond mothers always,
Needs my skill
And care—
Something more than
Fond pride—
To welcome it!
I supplement the
Mother love
Which often
Does not know.
I am at your
"Beck and call"
Always.
To whom do you turn
In the greatest crisis
Of your life?
The Doctor!
When you stand
At the Gates of Death—
You, or one of your loved ones—
I am summoned
And I come.
Mayhap thru wild winter storms
Or summer's fierce heat
I answer the call of Duty.

I try again to put your feet
Onto the
Highroad to Health
And success.
Straightway, if I succeed
You forget.
If, being fallible, and human
I make one mistake,
I am cast aside, all
Benefits forgot!
I grow gray in
Your Service.
Always, always, I stand beside
The bed of pain,
To soothe and succor.
That is my life.
My bitter cup,
That you so soon
Forget.

What say you? Another call to duty
From one who suffers
Dire distress?
(Farewell brief moment of my leisure!)
I will come.
From one who never pays me
Say you?
Ah! Well!
Still answer,
I will come.

Clara Louise Carleton.



Etiology and Treatment of Enuresis.—Grover (*Jour. A. M. A.*, Aug. 24, 1918) bases his conclusions upon a study of about 200 cases in children between four and twelve years of age. He believes that the condition is never a disease entity, but is merely a symptom of an underlying, general neuromuscular fatigue. The fatigue is chronic and the patients are all of the overactive, nervous type. There is often an element of marked mental strain from too prolonged school work. The treatment is exclusively dietetic and hygienic. All food between meals is forbidden, even bread and butter and milk, and the following foods are excluded from the diet: Soups, coffee, tea, cocoa; sweet, salty and highly seasoned food; ice cream, candy, cakes and pastry; jellies, jams,

etc.; condiments, bananas and raw apples. To simplify the digestive work at night meat, eggs and vegetables are forbidden at supper. The diet consists of milk, butter, eggs, meat, fish, breadstuffs, cooked cereals, macaroni, vegetables, orange, stewed fruits and simple, unsweetened desserts. No fluids are given after four p. m.; the child must be in bed by seven p. m., and no active play is allowed after four p. m. If very nervous, school is temporarily prohibited and a nap required every afternoon. Moving pictures, music lessons and evening study are prohibited. Absolutely regular hours are established for urination at night, namely, seven and ten p. m. and six a. m.; and in some cases with small bladders, two a. m. for a while. The day wetters are made to urinate at regular times by the clock, the intervals being lengthened to increase the capacity of the bladder until a satisfactory régime is established. Rewards are offered for following the directions. The results of such treatment are surprisingly good as shown by the fact that nineteen per cent. of the patients did not wet again after their first visit, twenty-three per cent. did not wet once after the first few weeks or months, thirty-one per cent. were reduced to a maximum of wetting once a week, and only twelve per cent. were not benefited at all.

the brain may produce cerebral symptoms with or without signs of meningeal reaction and that the spinal fluid in such cases may show no cellular changes. The association of orchitis with meningitis in mumps is of interest in view of the recent report by Latham of epididymitis as a complication of epidemic meningitis. He states that some of the mildest cases of meningitis may show marked epididymal involvement. On the basis of Latham's report that in 70 per cent. of the cases with epididymal involvement the meningococcus was found in the blood, we might assume that analogous invasion of the blood takes place in mumps and that close study of the blood may throw light on its cause.

Warts.—In explanation of the etiology factor in the production of common warts Wile and Kingery (*Jour. of the Amer. Med. Assn.*, Sept. 27, 1919) state that there have been advanced at various times the opinions that they are caused by an infecting organism, trauma or a foreign body. There are many clinical examples which stand out in favor of each of these hypotheses. The frequency with which verrucae occur at points of trauma, notably on the hands and feet, would, at first glance, speak strongly for trauma as the causative agent. In favor of a foreign body as a possible cause are the numerous clinical examples of localized hyperkeratosis following accidental implantation of thorns, thistles, bits of glass and steel. That localized hyperkeratosis of a warty type undoubtedly occurs following such foreign body implantation is, however, in no way conclusive proof of the etiologic moment of the foreign body itself. The injury incident to the entrance of the foreign body can as readily be accepted as the portal of entrance for an infecting organism. The clinical evidence in favor of an infectious agent in the causation of warts is extremely suggestive.

Rovsing's Sign in Chronic Appendicitis.—Among the provoked pains of chronic appendicitis, says an editorial writer in the *New York Med. Jour.* (Aug. 16, 1919), a special place should be given to pain produced by the forcing back of gas in the cecum and appendix. To this phenomenon the name of Rovsing has become attached, because he apparently was the first to study it. But the paternity of this sign does not in reality belong to the distinguished surgeon of Copenhagen. He unquestionably was the first to advise to search for pain by progressively pushing back the gas in the descending colon from below upward, then continuing to slide the hand, still pressing deeply from left to right, along the transverse colon and finally sliding it from above downward into the flank and right iliac fossa toward the cecum. This procedure, which is difficult to carry out properly, is due to Rovsing and to it his name rightly belongs, but three years before he published his method in 1907,

The Cerebral Complications of Mumps.—Mumps is generally considered a benign infection; but during epidemics it may increase in virulence and severe complications arise, states an editorial writer in the *Jour. of the Amer. Med. Assn.* (Sept. 20, 1919). Of the complications, orchitis, pancreatitis and meningitis are the most important. Meningeal reactions may appear two or three days after the appearance of the swelling, or later as the parotitis is subsiding. Frequently orchitis also develops. The meningitis may manifest itself by increased fever, headache, insomnia, general discomfort and, according to Acker, exceptionally by nausea, vomiting, rigidity of the neck, Kernig's sign, and pupillary changes. The spinal fluid usually is clear, but is under increased pressure and shows a lymphocytosis. Before the advent of spinal puncture, these meningeal symptoms were spoken of as a meningismus of parotitis; but now the occurrence of actual meningitis in the course of mumps is accepted. In a recent study, Haden remarks that many features of the nervous complications point to an encephalitis, and not simply to a meningitis, and that in most cases the cerebral symptoms are out of all proportion to the meningeal reaction as reflected in the spinal fluid. The occurrence of symptoms of cerebral irritation was noted by Acker, who also records cases with convulsions, monoplegia, hemiplegia or aphasia. Other recent reports seem to confirm the view that the symptoms are due to an involvement of the brain substance; but in the absence of anatomic study of such cases the question remains open. It may be well to recall that, in acute infectious diseases, edema of

Walther of Paris demonstrated that free and deep abdominal palpation over areas other than the right iliac fossa provoked a pain in the appendix by gas distention of the cecum.

In all doubtful cases of appendicitis it is well to look for this appendicular pain by distention of the cecum, which will generally give valuable data. With the right hand applied flat on the middle and left part of the abdomen, deep pressure is made, forcing the intestinal gas back toward the right segment of the colon. Then the left hand is progressively pushed into the area of the right colonic angle whereby the cecum becomes distended. By this technic, pain in the appendix from cecal distention is more readily realized than by Rovsing's method.

Not only is this sign very accurate, but it possesses another great advantage. In nervous subjects, direct palpation of the right iliac fossa—a region spontaneously painful—is rendered more difficult on account of the patient's apprehension, who instinctively contracts the abdominal wall. On the contrary, palpitation at a distance does not awaken this distrust, so that an exploration can be carried out which would otherwise be impossible.

Drug Addiction.—In a recent number of the *American Journal of Public Health*, Ernest S. Bishop discusses the subject of drug addiction and points out that this is a disease which should be studied and treated primarily from a scientific instead of from a social and legal point of view. Drug addiction is recognized as a problem involving nearly as many persons as tuberculosis, people who should not be regarded purely as mental degenerates. Dr. Bishop asserts—and probably no one in America can speak with greater authority—that drug addiction exists in mentally, morally and physically normal individuals as well as among the lower classes with whom it is generally associated. Bishop believes that the phenomena which attend withholding opiates in the addicted may best be explained by the presence of some antidotal substance developed and circulating in the blood. In order to deal more adequately with the drug situation, the author recommends organized scientific, medical or public health activity directed towards the clinical and laboratory investigation of this disease.



Gonorrhreal Arthritis.—In regard to gonorrhreal arthritis, first be sure that your arthritis is of gonorrhreal origin. This can be ascertained by the history, the age, the sex of the patient,

by the complement-fixation test for gonorrhea and, of course, smears from the urethra and smears after prostatic massage will help. Goldstein (*Med. Brief*, Nov., 1919) states that all of these cases have a focus of infection some place and this is usually in the prostate or the seminal vesicle in the male and in the tubes and ovaries of the female. The gonorrhea cannot be eliminated unless you treat these foci of infection. The best method of treatment other than the rest and local treatment is the administration of large doses of antigenococcic serum, say up to 50 c. c. This is given best, ordinarily, in doses of 10 or 15 c. c. on successive days. The action of the serum is enhanced by the combined administration of mixed polyvalent vaccines in doses varying from a quarter of a billion to two, three or even four billion. In the more subacute or chronic cases, the careful administration of fresh vaccine in large doses seems to do more good than the serum alone. The preferred method of treatment is a combination of the two. Occasionally, on the eighth or tenth day following the administration of the serum, there is an anaphylactic reaction. This can best be controlled by the administration of adrenalin, 1 to 1,000 in 15 minim doses every hour to five hours, and $\frac{1}{100}$ to $\frac{1}{125}$ th of a grain of atropine hypodermically. Large doses of alkaline remedies, lemonade and kalak water can be given until the reaction subsides. If the gonorrhreal rheumatism does not then improve, one must keep on with the local treatment, prostatic and vesical massage, etc. Then again, failure in improvement may be due to inadequate dosage of antigenococcic serum and antigenococcic stock vaccine—the intravenous administration of the serum may act more promptly in severe cases.

Finally, don't forget the tonsils, bad teeth and infected sinuses are the most frequent cause of an arthritis, and that this source of infection may be overlooked even if there is a urethritis present.

Cutaneous Cancer.—Reporting on dermatology in *Boston Medical and Surgical Journal* (May 30, 1918), Bowen says that cauterization is by some considered to be better than the knife or curette for cutaneous cancer, because it does not open up the lymphatic and blood vessels, and also claims for it a selective action on the pathologic tissue and that an inhibitory action is produced on the malignant cell by the copious outpouring of serum.

1. If the lesion is in the earliest stages of evolution, a local cure may be expected as a result of adequate treatment with arsenic paste, actual cautery, Roentgen ray, or radium fulguration and excision. It is advisable, even in these early cases, to apply the Roentgen rays to the treated area and the neighboring lymphatics when the lesion has been destroyed by some agent other than radium or the Roentgen ray. Speaking comparatively of the Roentgen ray and radium, there are instances when the latter is of greater value, namely, in Roentgen ray cancer and the growths that occur in

xeroderma pigmentosum. Radium is also preferable in epitheliomas developing on leukoplakia, not only on account of the location, but because the results are superior.

2. If the growth is advanced beyond the very early stages, it should be removed by excision and the roentgen ray applied as a prophylactic agent, as already outlined.

3. If, for various reasons, the lesion cannot be excised, it can be removed by the actual cautery or with arsenical paste, and the Roentgen ray used as a prophylactic.

4. Finally, there are cases in which, on account of certain complications and difficulties, none of these methods can be utilized. In such instances we can resort to Sherwell's method.

Diet During the Puerperium.—The diet advised for the puerperal woman in the average textbook on obstetrics is irrational, states Rucker in the May issue of the *Virginia Med. Monthly*. One should bear in mind that the milk flow is largely influenced by the diet and can be largely controlled at will by the character of food given, and especially by the amount of fluid allowed. Certain articles of food are partly excreted in the milk, or modify in a manner prejudicial to the infant—especially acid fruits and vegetables with a decided flavor such as cabbage, turnips, carrots and sweet potatoes. Both the old method of starving the puerpera for the first week and the newer procedure of forced feeding—which means forced liquids—are cruel and unnecessary. Under the latter procedure the breasts become greatly engorged and very painful, expert nursing becoming necessary for their relief. A more rational plan is to place the patient at once on a general diet and then modify it according to the behavior of the breasts. If the milk proves inadequate the fluids can easily be augmented or the patient even placed on a liquid diet. The general diet obviates the loss of weight so common in former times, as well as the more recent painful breasts. It is more pleasant for the patient, allowing her a greater variety of food and is less constipating, an occasional enema being usually all that is required. Since the author adopted this plan of feeding, several years ago, no patient has had engorged, painful breasts. The milk flow has been more gradual in onset, but longer sustained. In most cases it has been abundant, even in highly nervous, frail women. The overabundance of milk often followed by agalactia because of inability of the infant to empty the breasts, was never met with.

Amebic Dysentery: Treatment by Bismuth.—Yorke (*British Med. Jour.*, April 12, 1919) draws attention to the value, in the treatment of acute amebic dysentery, of bismuth subnitrate in massive doses, as recommended by Bates from experience gained in the Panama zone. A combination of large doses of bismuth

by the mouth, combined with hypodermic injections of emetine, gives much more constant and satisfactory results than emetine alone.

A preliminary saline purge is given unless the acute dysentery has already persisted for several days, in which case it is unnecessary.

Emetine hydrochloride, one grain, is injected subcutaneously, and bismuth subnitrate, 120 to 180 grains, suspended in milk or water, is given by the mouth three or four times daily for a period of twelve days.

Occasionally a morning saline may be necessary if the bismuth causes constipation.

This treatment invariably clears the stools of entamebae—a result which can by no means be claimed for emetine alone—and causes the disappearance of the symptoms of acute dysentery, the stools speedily becoming less frequent and free from blood and mucus.

Ambulatory Treatment of Varicose Ulcer and Edema of the Leg.—Audibert and Fouquet (*Presse médicale*, May 8, 1919) recommend a treatment based upon firm bandaging of the limb with gauze impregnated with the following paste:

Gelatin,	{	of each.....	10 grams
Zinc oxide,			
Starch,	{	of each	40 grams
Glycerin,			
Water,			
Potassium silicate.....			100 grams

Before use the gauze bandage is softened in warm boiled water and subjected to pressure to drive out any excess of the paste. The ulcer and surrounding tissues are carefully cleansed with boiled water, the ulcer dusted with a bland powder, and its margins protected with strips of leucoplast to prevent subsequent tearing away of new epidermis when the dressing is removed. The prepared bandage, which should consist of rather stiff gauze, is then applied about the foot and leg in circular fashion, beginning at the root of the toes. In cases with edema, some degree of pressure should be exerted over the lower portion of the leg. The dressing is renewed every four days at first; later, when suppuration has ceased, at weekly intervals. This form of dressing is absorbent and antiseptic; mercury bichloride, one in 1,000, or salicylic acid, may be added to the formula to enhance the latter property. The treatment was applied with notable success in 120 cases. Its efficiency is illustrated in the case cited of an ulcer of ten years' standing which healed in thirty-one days—after six dressings.

Pain disappears in a few hours after application of the dressing and the patient is urged to walk about, the resulting activation of local circulation, now supported by the bandage which acts as an artificial covering fascia, promoting the processes of repair. Granulation is often so active that application of silver nitrate becomes necessary. After recovery, recurrence should be prevented by means of an adjustable elastic bandage. The treatment is

serviceable also in syphilitic leg ulcers as an auxiliary measure.

Treatment of Epithelioma by Radium.—A writer in the *International Clinics* emphasizes the fact, with many photographic illustrations, that in each case the proper form of radiation and dosage for each case must be carefully determined.

Four classes of epithelioma are to be considered:

First, the lesion which can be cured by one application of radium with the proper dosage.

Second, the lesion which is so situated that glandular involvement is likely to take place or has already occurred and the Roentgen ray should be employed as an adjunct to treat adjacent glands.

Third, those cases in which the local application of radium supplemented by the Roentgen ray will only act as a palliative measure.

Fourth, those cases in which excision is justified to be followed by radiotherapy.

Professor Boggs (*Therapeutic Record*) believes that radium and the X-ray should always be considered first in the treatment of epithelioma because, when properly applied, practically all epitheliomatous tissue can be made to disappear and there are fewer recurrences than by any other method. In order to apply the method, however, the operator must have the requisite clinical experience with these growths as well as a knowledge of the use of the agents employed.

Inoperable cases in which the tonsil is involved, are often markedly improved so far as symptoms are considered.

The Treatment of Vaginal Discharge.—Chandler (*New York Med. Jour.*, Oct. 11, 1919) advocates treating ordinary discharges of the vagina by a so-called dry method. Six treatments were given in the cases reported. The first three treatments consisted of swabbing the cervical canal with pure carbolic acid and painting the entire vagina mucous membrane with a weak solution of iodine, after which the vagina was packed with dry sterile gauze in sufficient quantities to straighten out all the folds. The last treatments consisted of the application of a powder made of equal parts of stearate of zinc, starch and boracic acid, and packing the vagina with sterile gauze. The advantages alleged were that this treatment cured more quickly than any other method.

Treatment of Wounds By Paraffin.—Pratt asserts that he knows (*British Medical Journal*, March 1, 1919) of no other treatment in which the constitutional symptoms so quickly disappear, in which the pain so rapidly subsides and in which healing is so uninterrupted, as in wounds and burns treated by soft paraffin.

The wound or burn is first thoroly cleansed with sterilized water; the paraffin is then melted and either sprayed by a special spray or painted by a sterilized brush over the affected area. One layer of gauze is then placed over the injured part and then another layer of melted paraffin is either sprayed or painted over the gauze. On the top of this a cotton-wool pad is placed and then the part is bandaged. The dressing is left undisturbed for twenty-four hours, when it is removed and a fresh application made. A third dressing is applied in ordinary cases the next day and, when necessary, a fourth dressing two days after.



The Student's Health Creed.—The Indiana State Board of Health has issued the following "Health Creed" to the school children of their state. It contains so much splendid advice in brief, terse form that it should be sent all over the country:

I believe my body and good health are sacred. If I am sick it will very probably be because I have violated some one or more of nature's laws of health.

I will study nature's laws of health and will obey them for my own sake.

I will not suck my fingers or pick my nose or wipe my nose on my hand or sleeve, for these practices are unsanitary and very impolite.

I will not wet my fingers in my mouth when turning the leaves of books.

I will not put pencils in my mouth or wet them with my lips.

I will not put pins or money in my mouth.

I will only use my mouth for eating good plain food, drinking pure water and milk and for saying good and kind words.

I will always chew my food thoroly and never drink whiskey or wine.

I will strive against the habit of "clearing my throat" because it is nearly always unnecessary and may be disagreeable to others.

I will not cough or sneeze without turning my face and holding a piece of paper or hand-kerchief before my mouth. Polite people never cough in public if they can prevent it.

I will keep my face, hands and fingernails as clean as possible.

I will not spit on the floor, stairways or sidewalks, and will try not to spit at all; ladies and gentlemen do not spit.

I will wash my mouth every morning on getting up and at night on going to bed, and will use a tooth brush if I can get one.

I will be clean in body, clean in mind, and avoid all habits that may give offense to others.

I will get all the fresh air I can and will open wide my bedroom windows when I go to bed.

The Poisoned Air of Industrial Sections.—Pine trees die in industrial cities, especially where much soft coal is used, and they die because they cannot breathe, says a writer in the *Medical Council*. Deciduous trees that shed their leaves or breathing apparatus once a year may live there, for they renew their respiratory systems every spring. Coniferous trees, especially those with needle leaves, are easily choked by the carbon and sulphur products in the air, and they gradually die.

If man could shed his respiratory mucous membranes and cells once a year he would rarely get catarrh, bronchitis, pulmonary tuberculosis, bronchial asthma or influenza. But man is just as much biologically unfit to live in a poisoned atmosphere as is the pine tree, for he is of the perennial type, not the deciduous one, and his respiratory system is very sensitive.

In addition to this, man is peculiarly sensitive to organisms that gain entrance to the respiratory tract; and the chemical irritation caused by the acids generated in the air of industrial sections renders him all the more susceptible. Indeed, with man, nearly all of the respiratory diseases, including catarrh, are more or less infectious; and if there is a great incidence of respiratory disease in an industrial city, with the gradual generation of peculiarly malignant strains of common catarrhal organisms, the persons in the surrounding country are apt to be infected, even if the air at their homes is pure. The great consumption of gasoline in the cities is also greatly adding to air contamination.

The lesson from all of this is obvious and it is becoming increasingly evident that smoke and gases resultant from combustion must be more intelligently handled and a way found to eliminate this menace to public health.

cus of Smith," by Wilson G. Smillie, M. D., of Cambridge, Mass.

For 1919 there is offered a prize of three hundred dollars and the Boylston Prize Medal, for the best dissertation on the results of original research in medicine, the subject to be chosen by the writer. The Boylston Prize Medal will be added to the money prize only in case the winning essay shows special originality in the investigations detailed.

Dissertations entered for this prize must be in the hands of the Secretary, H. C. Ernst, M. D., Harvard Medical School, Boston, Mass., on or before December 31, 1919.

In awarding these prizes, preference will be given to dissertations which exhibit original work, but if no dissertation is considered worthy of a prize, the award may be withheld.

Each dissertation must bear, in place of the author's name, some sentence or device, and must be accompanied by a sealed packet, bearing the same sentence or device, and containing the author's name and residence within.

Any clew by which the authorship of a dissertation is made known to the Committee will debar such dissertation from competition.

Dissertations must be printed or typewritten, and their pages must be bound in book form.

All unsuccessful dissertations are deposited with the Secretary, from whom they may be obtained, with the sealed packet unopened, if called for within one year after they have been received.

By an order adopted in 1826, the Secretary was directed to publish annually the following votes:

1. That the Board does not consider itself as approving the doctrines contained in any of the dissertations to which premiums may be adjudged.
2. That, in case of publication of a successful dissertation, the author be considered as bound to print the above vote in connection therewith.

The Boylston Medical Committee is appointed by the President and Fellows of Harvard College, and consists of the following physicians: William F. Whitney, M. D., Chairman; Harold C. Ernst, M. D., Secretary; William T. Porter, M. D., Edward H. Nichols, M. D., Reid Hunt, M. D., Henry A. Christian, M. D., John Warren, M. D.

The address of the Secretary of the Boylston Medical Committee is Harold C. Ernst, M. D., Harvard Medical School, Boston, Mass.

That Precious American Soap.—You pay thirty-five cents for an ordinary piece of coarse, brown laundry soap in Prague, Bohemia, and toilet soap costs six times as much. Some soap has been sent in by the American Red Cross but sending in soap enough to wash a nation is a big job, and this new republic of Czecho-Slovakia has few animals left from which to obtain soap fats. Neither does it have trees that produce vegetable oils.

In Rumania, too, soap is more to be desired than rubies or fine gold. A Red Cross worker, inspecting the hospitals in Bucharest, was met

NEWS NOTES AND ANNOUNCEMENTS

Boylston Medical Prizes.—These prizes, which are open to public competition, are offered for the best dissertation on questions in medical science proposed by the Boylston Medical Committee.

At the annual meeting held in Boston in 1916 a prize of three hundred dollars was awarded to an essay entitled "Studies of the Streptococ-

everywhere with accounts of the cures effected thru the use of American soap. Two thousand cakes had been distributed at a military hospital at Aradea Mare and the doctors in charge declared that 500 cases of sore eyes had been cured principally thru the use of this soap. At Bekes Csaba, soap again was praised as a remedy which had abolished skin diseases among hundreds of patients.

Caring for Drug Addicts in Louisiana.—Visiting physicians who have specialized in the treatment of the drug habit said some interesting things to the State Board of Health at a recent meeting in New Orleans says a writer in the *Item*. One of the most pleasant was that the clinic for drug addicts, operated under control of Doctor Merrick Swords, is the best and most sensibly managed in the country because it handles the sufferers as it would any other persons afflicted with disease and because it safeguards their identity from prying eyes and relieves them alike of the extortions of the drug peddlers and the exactions of "institutions" and "experts", most of which do them no good. It is gratifying to know that here is one thing the State of Louisiana is doing for its unfortunates, and doing well and competently.

The visitors also remove the mysterious horrors in which rumor has enveloped victims of the drug habit. The addict, said one of them is not a liar or a criminal. The percentage of crimes and untruthful persons among them is about the same as among ordinary humanity. Drug-taking does not cause, nor is it an evidence of degeneracy. The victim of drugs is merely one who is ill and who will cooperate with the physician if he knows that his advisor is honest and competent.

Another interesting point made was their warning against the professional reformer who wants to remake humanity with a few slogans and catchwords and would heal the sick by passing laws to harass or imprison them. Humanity may be coaxed into the right path, it may be weaned away from disease and habits that cause disease, but not by "drives" and "professional propaganda." And dear Lord, how weary the country is getting of them!

Genito-Urinary Clinics.—Physicians are cordially invited to the genito-urinary clinics given by Dr. Abr. L. Wolbarst on Thursday evening, at 8.30 o'clock, November to March inclusive, at the West Side Dispensary and Hospital, 328 West 42nd Street, near 8th Avenue, New York. Interesting cases may be brought for diagnosis and conference.

What We Know About Cancer.—The American Society for the Control of Cancer announces the publication, thru the Council on Health and Public Instruction of the American Medical Association, of a new handbook for

practitioners entitled "What We Know About Cancer." The handbook has been prepared by a special committee consisting of Dr. Robert B. Greenough, director of the Harvard Cancer Commission; Dr. James Ewing, professor of pathology at Cornell University Medical College, and director of cancer research at the Memorial Hospital, New York, and Dr. J. M. Wainwright, of Scranton, Pa., for many years chairman of the cancer commission of the Pennsylvania State Medical Association. In addition the manuscript has been reviewed and criticized by a number of prominent surgeons and other students of cancer and revised in accordance with the suggestions thus obtained. The handbook attempts to provide in a brief compendium the essential facts about cancer in general and its manifestations in the different locations where it most commonly occurs.

Organization Against Health Insurance.—The New York Federation of Physicians announces that the Kings County Professional Guild will call a mass meeting in the near future for the purpose of organizing the medical profession in opposition to compulsory health insurance. Persons desiring further information may communicate with the organization committee at 207 East Tenth Street, New York.

Dr. Garvin Decorated for Services in France.—Major Albert H. Garvin, chief of the Bureau of Tuberculosis, Medical and Surgical Department with the American Red Cross forces in France, has been decorated with the Medaille d'Honneur de Vermeil of the French government in recognition of his services to that country. Major Garvin, who went to France in September, 1917, was superintendent of the New York State Hospital for Tuberculosis for ten years. He returned to America late in June.

IT ISN'T YOUR TOWN—IT'S YOU.

If you want to live in the kind of a town
Like the kind of a town you like,
You needn't slip your clothes in a grip
And start on a long, long hike.
You'll only find what you left behind,
For there's nothing that's really new.
It's a knock at yourself when you knock your
town.
It isn't the town—it's you!

Real towns are not made by men afraid
Lest somebody else gets ahead.
When everyone works and nobody shirks
You can raise a town from the dead.
And if while you make your personal stake
Your neighbors can make one, too,
Your town will be what you want to see,
It isn't the town—it's you!

—Exchange.

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YEARLY
In Advance

Reforming Medical Teaching.—Reconstruction in Medical Education was the basis of the presidential address of George D. Head, before the Minnesota State Medical Society. His constructive arraignment of medical teaching (*Minnesota Medicine*, Dec., 1919) is stimulating and suggestive, constituting the practical reflections of a teacher of medicine of twenty years' experience, after completing his observations of the results of medical teaching as evidenced in the military service.

His criticisms are not leveled at all medical schools, nor do his remarks cover all individual students. He reviews the tendencies of medical colleges and sympathetically makes interrogations concerning the types of practitioners that are being developed at the present time. His estimate of the nature of the graduate in medicine is based upon certain qualities which he deems essential. "He should possess: (1) Adequate knowledge; (2) an analytical mind capable of weighing evidence and drawing conclusions; (3) a love of truth continually urging him to make investigations and record observations; (4) a realization of the limitations of his knowledge, which prompts him to seek by diligent study and post-graduate instruction to perfect it; (5) an acquaintance with the art of the practice of medicine secured by close association with men of experience and personal qualifications; (6) a calm and equitable tem-

perament and a large fund of human sympathy; (7) a lofty conception of the ideals of his professional work, which lifts it above the standards of business and civil life."

From an analysis of current practice in teaching, he concludes that there is a lack in development of initiative, a tendency to an overstoring of the mind with facts, a lack in virility, in power and growth, and insufficient attention to the development of powers of analysis and keen observation. In his words: "Our system of modern medical education is now creating a type of men with less initiative, weaker powers of analytical reasoning and observation, and the ability to differentiate clearly between fact and theory than any generation of medical graduates which has preceded him in the last quarter of a century."

He demands some re-adjustment in the relation of professor and student, so that personal contact may be closer and so that the realities of medicine may be presented more directly than thru subordinate instructors. He advocates the development of research work during the period of medical training as a means of fostering the spirit of the investigator, arousing initiative and cultivating the powers of observation. Particularly does he stress the necessity of creating a broad point of view with reference to the human side of medicine and a recognition of a greater degree

of humanity in the face of current problems. He wisely comments, "Men and women are not test tubes and retorts," and as a result he advocates more attention being placed upon the humanitarian side of medicine, which he regards as having been more in evidence two decades ago than at the present time.

As a means of stimulating patience, optimism, human interest and understanding, he suggests that some advantages are to be found in a readaptation of the old preceptorial system.

In his philosophic comments, one notes a greater appreciation of the humanities than of the laboratories, and more belief in medical idealism than in emphasizing financial returns.

There is a wealth of suggestion in his ideas concerning the reconstruction of undergraduate education. He is not blind to the dangers of an overweighted curriculum, nor does he require medical omniscience as the prerequisite to securing a diploma. For this reason he calls for a greater effort on the part of the profession to develop our institutions of post-graduate instruction.

It is highly significant to find the reactions to war experiences evidencing themselves in dissatisfaction with the general plan of medical teaching. It is most hopeful to find the highest and the finest criticisms arising in the medical profession and from the lips and pens of teachers of long experience and broad vision. It requires, however, the backing of the rank and file of the profession to sustain the efforts of the leaders and to guarantee the reforms in medical instruction that they boldly announce and unhesitatingly demand.

a decade of efforts in behalf of infancy is manifested in the mortality statistics. According to the figures of 1917 and preceding years, it is apparent that infant deaths form a smaller part of the total deaths. Certain factors, such as diarrhea and enteritis, are growing less important while other factors as premature birth and birth injuries are of increasing significance.

In 1917 the total deaths under one year of age constituted only 15.7% of the total deaths in the registration states, as compared with 19.4% in 1910. It is striking that the total deaths of infants less than one day old increased from 9.8% in 1910 to 15.8% of the total deaths under one year of age in 1917. The relative percentage of deaths under one week was practically stationary. There was a small decline for infant mortality under one month of age, with a marked decline for children between the ages of one month and one year.

As might be suspected from the age distribution of mortality during infancy, there is a pronounced increase in conditions leading to death during the first few days. Whereas diarrhea and enteritis caused 28.6% of the infant mortality during 1910, it was accountable for only 22.5% during 1917. On the other hand, malformation increased from 5% to 7.3%, premature births from 14.3% to 20.5%, and injuries at birth from 2.4% to 4.4% during the same period of eight years.

There is cause for reflection in the increase of the death rate from premature births from 17.5% in 1910 to 21.1% in 1917, as well as the rate of injuries at birth from 3.2% to 4.6%. Possibly a part of the answer lies in the intensity of activity for infant welfare thru the medium of milk stations, improved health admin-

istration and increased attention to health education relative to the facts of infant care. In all probability a certain measure of responsibility rests upon the medical profession for the increase of death from birth injuries, possibly due to the too frequent and improper use of forceps. The increase in syphilis is not marked in the death rate, so it possibly does not play a large part in affecting the death rate from malformation or premature births; and this conjecture is further supported by the fact that deaths from congenital debility have sharply declined.

Mortality figures strongly suggest the importance of extending facilities for better obstetric attention and particularly for the advancement of administrative measures leading to an improved hygiene of pregnancy, with the accompanying benefits of prenatal care. The methods thus far employed are valueless for effecting a decrease in the mortality at birth or during the first week, unless recourse is had to some administrative measure such as maternity clinics and instructive nursing for pregnant women. Results thus far available indicate that this course of action is most valuable for diminishing the number of premature births, lessening the number of still births and for obviating many of the difficulties incident to childbearing. Under these circumstances there is a powerful argument for a wider introduction in baby-saving campaigns, of the activities centered upon pregnancy and labor.

correlate health and sanitary conditions. This ratio which he called "the sanitary index" consisted of the sum of all the deaths from causes number one to number fifteen in the *Abridged International Classification of Causes of Death*, plus all infant deaths divided by the total population. The ratio of all other deaths to the population he called the residual death rate. The general death rate consists of the sum of these two.

In the Tenth Annual Report of the Commissioner of Health of the Commonwealth of Pennsylvania, the sanitary index is discussed as a method of measuring the efficiency of public health work. The death rate is merely an index of the ratio of the number of persons dying in any fixed period of time to each unit of one thousand persons. Its reduction is most desirable, but such a reduced death rate is not an evidence of the effectiveness of efforts to bring it about, nor does it suffice to indicate wherein sanitary failure was responsible for a larger mortality than should have occurred.

At times the presence of specific diseases, such as typhoid fever, tuberculosis, and diphtheria, have been considered as a basis for presenting statistics relative to sanitary progress, but they fail to present a sufficiently composite picture to indicate the complete accomplishment of sanitation along prophylactic lines.

A large group of diseases has been recognized as preventable thru direct sanitary efforts, while another group has been recognized as being amenable to the helpful influences of educational efforts to promote personal hygiene. Such diseases as typhoid fever, typhus, relapsing fever, malaria, smallpox, measles, scarlet fever, whooping-cough, diphtheria, cholera, dysentery, plague, influenza and the various conditions

A Sanitary Index.—In 1916 W. R. Batt, Registrar of the Pennsylvania State Department of Health, suggested a means of securing a single figure which might

giving rise to infant mortality require and absorb the bulk of the efforts and resources of public health officers and the results of grappling with them may be considered as a reasonable index of efficiency in protecting life and health.

These, therefore, are the diseases and deaths from which are estimated, with relation to the general population, the statistics to establish a sanitary index.

The Pennsylvania experience during the ten years, 1906-1915, evidences that the principal reduction in the general death rate has been due to the declining in deaths from the diseases that are the objects of sanitary attack. The residual death rate which includes the evidence for the need for greater efforts to improve personal hygiene, safeguard industrial workers, and improve racial vitality, does not evidence the marked decline so patent in the sanitary index.

A high sanitary index is the result of inadequate or ineffective efforts at sanitation. Other factors entering into it are the nature and character of the population as reflected in age, sex, color and nativity, and the presence or absence of uncontrolled epidemics. In order to make the maximum use of the sanitary index, a state or municipality should be divided into several units of population, possessing sufficiently numerous basic common characteristics to make comparisons possible and fair. The numerical distribution need not be similar; to illustrate, in Pennsylvania, population groups consist of (1) 4 municipalities having more than 100,000 population, (2) 8 municipalities of between 50,000 and 100,000 population, (3) 9 municipalities of between 25,000 and 50,000 population, (4) 41 municipalities of between 10,000 and 25,000 population, (5) 877 municipalities each

having less than 10,000 population, (6) 1,556 townships constituting the rural population.

The State Department of Health had the direct responsibility for the sixth group which comprised only 31.5% of the total population of the state. By the use of these various groups it was possible to study the efficiency of the numerous administrative agencies responsible for the maintenance of sanitation.

This method of comparing the sanitary indices provides a form of measurement, which enables the student or investigator of public health methods, to scrutinize the results accomplished in terms of the expenditure of money and effort. It is equally valuable in pointing out sections wherein sanitation has advanced or in which it has failed to achieve the best result.

The use of measures of this character is distinctly advantageous and while the sanitary index is not to be regarded as the final word in measurements of this type, it does afford a practical and useful "yard stick" when applied to wards in a city, counties in a state, or to the general work of the various states within the nation.

The Metric System.—The standards of weights and measures used in Great Britain and America are out of harmony with the metric system in its world-wide usefulness. The difficulties incident to this lack of harmony were emphasized during the period of warfare, when the United States War Department was obliged to adopt the metric system for use in France, "for all firing data, for artillery and machine guns, in the preparation of operation orders, and in map construction." This unified stand-

ardization was called forth because of the numerous difficulties arising from endeavoring to secure unanimity in action while discussing different units essential for war measures.

As the Arabic numerals are now generally employed in mathematical computation, so there is a need for a single standard of measure. To this end there is renewed agitation for the adoption of the meter-liter-gram standard in the United States and Great Britain. Thirty-four nations now employ the metric system exclusively, while two hundred and twelve countries make partial use of metric units or have adopted standards equivalent to metric units.

When one recalls the vast number of units of measure now employed for dry measure, wet measure, Troy and apothecary weight; and then contemplates the different kinds of gallons and quarts, pecks, bushels and ounces, the complexity of our present system is at once apparent. The simplicity of the metric system commends itself and the facility with which this decimal system is acquired and used argues for its adoption.

Whatever advantages the meter-liter-gram standard possesses for commerce, invention and scientific investigations also apply in the sphere of medical practice. The tendency to write prescriptions in the metric system is increasing despite the fact that American practice labors under the disadvantage of having two systems which are only interchangeable thru the use of a simple mathematical formula. The pharmacist has more service from the metric measures than from the current standards for dry or liquid measurement, and the use of the apothecaries scale is more cumbersome than the simple use of the metric table.

The difficulty in introducing a single system lies merely in tradition and conservatism. The decimal coinage in this country reflects an interest in the value of the metric system. Had the advice of Thomas Jefferson been followed, America would have adopted the complete system more than one hundred and twenty-five years ago. It is not unreasonable to believe that in our present-day efforts to secure some relief from various phases of international confusion, a new trial will be made to adopt a universal plan for the expression of quantity and that in this connection the metric system will probably emerge triumphant. There is, assuredly, hope that the example set by the United States Pharmacopeia in adopting the metric system will be followed in the near future thru the national approval of the so-called French system—which as a matter of history was invented by an Englishman.

Venereal Suspects.—The various methods being employed to secure the control of the venereal diseases raise numerous legal questions. Vague regulations have been instituted in various communities providing for the detention of persons suspected of having venereal diseases. In order to ascertain the existence of syphilis, for example, the employment of the Wassermann reaction is frequently necessary. In this connection, the opinion given by the Supreme Court of Iowa shows the imperative necessity for definite laws authorizing action by boards of health. In connection with the detention of persons suspected of having venereal disease, the following abstract from *Public Health Report*, March 21, 1919, is of the utmost importance.

"One Wragg was arrested charged with lewdness. Bail was fixed, subject however to the order of the local board of health, which board subsequently issued an order detaining the accused until it could be ascertained whether he was afflicted with a venereal disease. Wragg then sued out a writ of habeas corpus for his release. The stipulated facts showed that petitioner would be compelled to permit an expert to extract approximately 5 cubic centimeters of blood from petitioner's veins to determine whether he was afflicted with syphilis, such test being known as the 'Wassermann reaction,' and that the petitioner would be further restrained if the expert should report a positive reaction.

"The Supreme Court of Iowa, in an opinion by Judge Weaver in *Wragg v. Griffin* (170 *Northwestern Reporter*, 400), after determining that neither under the statute law nor under the rules of the board of health could a person merely suspected of having a venereal disease be compelled to submit to such an examination, says: 'Even when charged with the gravest of crimes, one cannot be compelled to give evidence against himself, nor can the State compel him to submit to a medical or surgical examination, the result of which may tend to convict him of a public offense; and, if there be any good reason why the same objections are not available in a proceeding which may subject him to ignominious restraint and public ostracism, it is at least a safe and salutary proposition to hold that, before the courts will uphold such an exercise of power, it must be authorized by a clear and definite expression of the legislative will.'

"The writ was therefore sustained."

The justice of this decision, in the light of present regulation, is not open to question, but it is patent that public opinion,

crystallized into law, will make adequate provision for securing the scientific information desired. The tendency of the day is to recognize the force and merit of procedures designed to protect the public health, and, incidentally, to protect individuals from the dire results of their own ignorance or neglect.

The existence of methods for determining disease carriers carries with it a certain responsibility for securing their application in a practical manner in the interests of the community. The determining of venereal diseases, unfortunately, still manifests a reflection of the attitude of the public regarding venereal diseases in their moral aspects. From the public health standpoint, it is obvious that the moral and ethical problems are secondary to public health values. If the power of public opinion has been effective in establishing a moral plane which has permitted the concealment of menacing diseases, a redevelopment of the public conscience will suffice to counteract this attitude. Thus will be established a more powerful opinion concerning the dangers of venereal disease, and the necessity for their control in the interests of the community. A freer knowledge of the essential medical and social facts will transform some of the social energy now devoted to the protection of individuals from possible stigma and ostracism to the rational position that is held towards those unfortunate enough to be effected by non-venereal diseases of a contagious nature, which do not involve moral turpitude, but, nevertheless, constitute the sufferers as potential sources of danger to the public health.

A typhoid carrier, it is true, cannot be held responsible for his condition, altho the general public cannot escape the accusation

of moral indifference to the continued existence of such a preventable disease. A venereal disease carrier may be guilty of an infringement of the moral law, but the public is not free from the criticism that its general attitude toward venereal diseases has been responsible to no small extent for the degree to which venereal diseases exist. Insofar as public effort seeks to mitigate the surroundings and environment, the attitudes of mind, the intentional disregard of the facts and evidence of the essential truths bound up in sex lore, it is aiming to counteract the pernicious conditions conducive to venereal infection. In the attempt to control venereal infections, the public mind is being awakened to its own blindness and neglect in a most encouraging manner.

The desire to control carriers of venereal disease is laudable, but dependence cannot be placed upon this method—in order to achieve satisfactory results. The promulgation of laws for the detention and examination of venereal suspects is but a trifling item in the campaign against venereal diseases. It possesses, however, a valuable educational message, far above the slight effect that such a procedure would have upon decreasing venereal diseases. It represents attacking the problem on the basis of individuals, whereas accomplishment can only be secured thru a wholesale revolution in ideas, ideals, methods of administration, and provision for the education and recreation of the public. The venereal disease carrier is assuredly a public health menace, but one may properly ask whether the greater menace is not to be found in the failure of communities to realize their responsibility for the existence of venereal disease in all its manifestations, and in their origin in

a social laxity due to the widespread ignorance and purposeful neglect.

The Births of a Nation.—The registration area for births in 1916 comprised the six New England States, New York, Pennsylvania, Michigan, Minnesota, Maryland, and the District of Columbia. This registration area comprising only about 25% of the population of the United States supplies the statistical material utilized in supplying the second report on birth statistics compiled by the Bureau of Census.

The most significant fact developed by the study of the birth rates and infant mortality is the marked excess of births over deaths, particularly in those localities in which the proportion of foreign born of the population is the largest. The birth rate 24.8 per thousand population was 10.1 per thousand higher than the death rate, 14.7 per thousand. It is obvious that if the birth and death rates of 1916 were to remain constant and migration played no part in the development of the areas concerned the general population would increase annually by a little more than one per cent.

A study of the native and foreign elements of the population makes patent the fact that far more births occur annually to white foreign born married women, aged 15 to 44, proportionately to their number than to native white married women of corresponding ages. In New York State, for example, the per cent. of foreign born mothers to total white mothers in 1916 was 52.84, tho in 1910 the foreign born married females, 15 to 44, constituted only 42.71% of the total number of white married females, 15 to 44. As the relative proportions of the female population probably did not

change greatly between 1910 and 1916 it is evident that the fecundity of foreign born mothers in New York State was considerably greater than that of native born mothers.

While war has achieved a certain degree of national solidarity in the United States, the various expressions of national sympathy evidence the fact, fully recognized, that the population of the United States is far from homogeneous in character. The elements of foreign blood entering into the growing generation warrant consideration in connection with any plan for the complete Americanization of the present growing population, now in, or soon to enter, the public school systems of the country. In 1916 in the birth registration area 52.4 per cent. of the white children had fathers born in foreign lands, while 56.6 per cent. of their mothers were born outside of the United States. The non-American nature of the stock is further evidenced by the fact that 11.3 per cent. of the fathers, and 11.9 per cent. of the mothers were born in Germany, Austria and Hungary. Italy gave 11.6 per cent. of the fathers, and 10.6 per cent. of the mothers. Russia and Poland yielded 10.7 per cent. of the fathers, and 9.7 per cent. of the mothers. Canada and England, Scotland, Wales and Ireland together were represented by only 7.2 per cent. of the fathers, and 7.4 per cent. of the mothers. Teutonic, Italian and Russian parentage constituted the main generative forces giving rise to the American born children of foreign parentage.

The inter-relation of birth rates and mortality rates largely determines the growth of population. The war has brought about profound alterations in both sets of figures. It is true that complete figures for the Uni-

ted States are lacking, but, nevertheless, it is possible to gain some idea of the comparative position of the United States and other countries in the matter of the protection of infancy. A high birth rate is by no means significant of rapid increase of population, because a high mortality rate may offset the apparent gain from new lives.

The Australian Commonwealth of 1915 had a birth rate of 27.3 and an infant death rate of only 10.7; in consequence, there were 256 births per hundred infant deaths. The German Empire, 1913, had a birth rate of 27.5 and a death rate of 15.0 with a rate of births per hundred infant deaths of 183. New Zealand, 1915, had a birth rate of 25.3, but a death rate of only 9.1 and the high rate of 279 births per hundred deaths under 1 year. The United Kingdom, 1915, had 142 births per hundred infant deaths. The birth registration area of the United States in 1916 had a birth rate of 24.8, and an infant mortality rate of 14.7, and the number of births per hundred infant deaths was 168.

These conditions varying markedly are strongly contrasted by the French figures of 1912, when the births per hundred infant deaths numbered only 108. While the infant mortality rate of the United States is fairly creditable, it is by no means as low as that of Australia, Denmark, New Zealand, the Netherlands, Norway, Ontario, Sweden, or Switzerland. Its birth rate is lower than that of Australia, Chile, Finland, Germany, Hungary, Italy, Japan, the Netherlands, New Zealand, Norway, Roumania, Russia, and various other countries as Austria, Italy, Germany, Hungary, Prussia, Roumania during pre-war years.

While the highest birth rates remain among foreign born parents, the infant

mortality rate similarly is found among the same group of the population, altho the relative infant mortality rates vary among the different nationalities.

Again, the lesson is driven home of the importance of a more complete system of birth registration for more complete and accurate mortality statistics as the basis of organized work for the conservation of childhood. The year of reconstruction now opening should be marked by renewed efforts to establish public health work upon a firm basis. Vital statistics are by no means dried and useless compilations of figures. They are forceful indications of the assets and liabilities of the race. They are sign posts along the road of racial progress which must be numerous and easily read if nations are to proceed freely along paths leading to increased national health, prosperity and happiness.

Artificial Limbs.—Up to September 19, 1919, there were exactly 1,200 claims for artificial limbs, says a recent report of the War Risk Bureau. Of these, 621 were artificial legs and 579 were artificial arms.

While the artificial limb was well known to the ancient Egyptians and was issued by Julius Caesar to the forces who captured Gaul and invaded England, in its modern application it is essentially the product of American inventive genius. The type of leg which Rameses used to order for his men and which was in general use by the mutiles of Pericles, consisted of a peg surmounted by a hollow wooden cone lined with leather, which was affixed to the body by means of a pair of homely suspenders. It was stiff and it was impossible, therefore, to "bend the pregnant hinges of the

knee." This was remedied by a French gallant who, in 1853, discovered that the emulation of "Hick, Hick, with his hickory limb" was unpopular in French society. He, therefore, inserted a hinge at the knee. While in the process of active perambulation a strong metal pin prevented flexion of the limb, but when seated the gallant beau would pull the pin and bend the hickory limb with his hand, thus removing the danger of tripping some fair Duchess. On rising, the leg was straightened out, the pin reinserted, and the process of "dot and carry one" recommenced.

We have progressed far from that crude apparatus. The close of the Civil War necessitated the manufacture of large numbers of artificial limbs and American ingenuity has succeeded in producing an artificial leg which is little short of marvelous. The limbs are made of wood, covered with rawhide which is shrunk on. They are very light, comfortable and useful. Many persons call them cork legs in the belief that they are made of cork. They forget, however, that the cork leg received its name from a famous city in Ireland, celebrated for its artificial limbs.

Artificial hands are, however, not quite so satisfactory. The arms themselves really function very well. Several enterprising manufacturers have, however, succeeded in producing fairly efficient artificial hands which function reasonably well when used with discretion and patience. The intelligent men who are willing to train themselves carefully are able to use these with a considerable degree of satisfaction. The present war has stimulated very greatly inventive genius along the lines of artificial limbs and it is believed that before very long an absolute satisfactory hand and arm will be placed upon the market.



Teachers' Salaries.—Medical interest in the extension of education arises from the fact that physicians are not merely practitioners of the healing art and advocates of public health education, but also because they are citizens and parents. The necessity for adequate school training is constantly accentuated. Stress is placed upon school houses, books and apparatus, but insufficient thought is devoted to the two most vital elements that go to make a school—the pupils and the teachers.

In a recent report upon "Teachers' Salaries and Salary Schedules in the United States, 1918-19," prepared by E. S. Even-den, for the Commission on the Emergency in Education of the National Educational Association, appear some striking statements from which we select the following: "There are more than 5,000,000 persons in the United States over 10 years of age (about one in every twenty) who cannot read nor write." "Of the 3,208,446 men examined by the draft boards of the United States, 949,419 were declared physically unfit for general military service. Considering that these men were in the prime of life and assuming that even the same proportion would hold for younger and older men and for women, it would indicate that there are 30,000,000 persons in the United States who are to a greater or less degree physically inefficient." "About 4,000,000 children are taught by teachers less than 21 years of age, with little or no high school training, with no professional preparation for their work and who are, in a great majority of cases, products of the same schools in which they teach." "The average number of year's (200 days) attendance at public schools for each individual, as indicated by the school statistics for 1916, was only 5.96%; or less than the completion of the sixth grade for an *average education* for the citizens of the greatest democracy of the world." "The total

high school enrollment for 1916 was only 8½% of the enrollment of the elementary schools."

These statements are of the utmost significance and should appeal particularly to the medical profession whose members represent a standard of education and training far above the average. There is every indication that America must awaken to the necessity of developing and securing a larger supply of adequately trained teachers to enable our public school system to prepare children for intelligent citizenship. Regardless of the mental capacity of children every scheme of education requires efficient teachers. Money may be "the root of all evil," but it is equally true that it is essential for much good. Competent teachers cannot be secured at a rate of compensation that can attract only the incompetents. According to the report mentioned, an average yearly salary of \$630.64 prevailed, or less than \$55.00 per month. This figure is scarcely a living wage and it is offered for the finest type of constructive work in the direction of training the young. What possibilities are there for a rich Americanization with poor teachers, poorly trained and poorly paid? In such large cities as New York and Chicago the salaries of school teachers are far less than those paid in occupations wherein relatively little training is required. It is worth more to carry bricks, to hammer iron, to mould dough, to wipe a joint, to putty a window, or put on a horse's shoe, than to lead the bodies and minds of children to a high degree of health, power, usefulness and loyalty. Street cleaning is a highly paid occupation compared with teaching, if the figures of New York form a criterion, the initial salary of a street cleaner being \$400.00 more than the initial salary of a school teacher.

It is time that the profession in its triple guise of physician, parent and citizen,

awakened to a sense of professional public and private responsibility toward matters of this nature. We offer no apology for urging medical men to take a practical interest in educational affairs. There is no subject more closely allied with the interests of medicine than education, and the Doctor-Teacher fully appreciates that the laborer is worthy of his hire and that capable service can best be secured by the granting of a wage in some measure commensurate with ability, interest and enthusiasm and the desired highest type of end-result.

How rarely, however, does one find a medical society passing a resolution urging upon the city father the necessity of granting a reasonable and deserved salary schedule for the teachers of their children, those excellent public servants who are charged with the duty of making the next generation a better, a healthier and a more ideal group of efficient citizens.

Health Centers.—The United States Public Service is urging a plan for the nation-wide conservation of health and is seeking to secure the cooperation of all health agencies in a unified program. It is patent that without a uniform program there is great danger of duplication of effort and waste of time, effort and funds.

The benefit of a systematic attack upon diseases is evidenced in the reduction of the typhoid fever death rate from 33.8 per one hundred thousand in 1900 to 13.4 in 1917, and tuberculosis from 190.5 to 146.4, and diphtheria from 35.4 to 16.5 during the same period of time. This evidence is highly suggestive of the possibilities of co-operation in public health administration and demonstrates the possibilities of future efforts in this direction.

The machinery of the American Red Cross, now letting up its war-time activities, is to be transformed into health energy on a peace-time basis. The benefits which are to accrue to the country in the potentials are most valuable, tho the actual extent of accomplishment will depend upon the establishment of a definite program with a distinct understanding as to the parts which must be played by public and private health agencies. It is obvious that various sections of the country have distinct prob-

lems of local interest in addition to the general problems common to all sections of the country.

The greatest advantages now being realized in the field of preventive medicine depend upon cooperation, education, and the development of interest in personal and familial hygiene. In these directions are moving the great forces of public health administration as well as the concentrated energies of private organization, interested in the control of tuberculosis, cancer, venereal diseases, the decrease of infant mortality, medical inspection of schools, and various types of centers for the dissemination of knowledge concerning the principles of health.

The American Red Cross is seeking to crystallize a part of its energy in the direction of assisting communities to establish health centers. Without any idea of encroaching upon the fields of other accredited public or volunteer health agencies, it aims to stimulate their efforts and, when possible, to coordinate them so that the entire field of public health work may be properly covered. As a new phase in this effort its influence is to be cast on the side of health centers which are to represent not merely the physical headquarters for communal health work, but the concrete expression of the practical interest of the community in the health and welfare of the entire community. These are to function in the interest of health and the prevention of disease thus differentiating them from the regular type of dispensary so well known. They will serve as places for the unification of dispensary facilities, as clearing houses of health information and in smaller communities may properly take the form of community houses or social centers.

While the chief activities of such health centers would concern themselves with the conservation of infants and children and the prevention of tuberculosis, there would be ample opportunity for directing energy along the lines of mental hygiene, industrial hygiene, social hygiene, as well as offering a center for dental work or the aftercare services growing out of epidemics such as influenza and poliomyelitis.

The aim of the health center should include the promotion of a better understanding and cooperation between physicians in private practice and those responsible for

public health activities. In smaller communities it might well become the headquarters of the county medical society, a repository of the medical library, and the location for consultations and diagnostic clinics. It may become the recognized source of centralized efforts for health education and physical guidance, having as an end the prevention of disease. Thus constituted it would develop into a neighborhood station affording constructive suggestions for the promotion of the general betterment of neighborhood life.

The recognition of health as a positive virtue to be developed possesses a tremendous advantage over the customary policy of recognizing disease as a liability. The health center idea is positively constructive and curative of many community ills that hitherto have grown out of the existence of preventable accidents, diseases and defects. Herein is an opportunity for an excellent peace program in which may be enlisted the activities of the medical profession and lay workers in private organizations as well as the direct interest of health administration in cities and villages, in counties and states. If the American Red Cross and the United States Public Health Service can secure the adoption of their plans a great step in advance will have been taken toward assuring mankind a larger opportunity for achieving and maintaining health and of improving the vitality and morale of the race.

other candidates of notable worth and achievement in the field. Yet this seems to be an occasion when a medical journal feels itself privileged and free, without fear of seeming unoriginal merely, to recommend one of its own brotherhood as singularly fitted for a responsibility which it is becoming daily more convincing to many that he could shoulder with credit both to himself and the country. In numerous quarters of the country the name of General Leonard Wood, surgeon, soldier and builder, is coming forward as a presidential candidate, and AMERICAN MEDICINE considers it an honor to record its approval of a choice which it considers admirable in every respect. And if, despite forbidding precedent, it is said that General Wood seems uniquely the man for the occasion, we hope it will not be thought that we are resorting merely to rhetoric. We have in mind his qualifications as soldier, surgeon and builder.

Mr. Albert Rhys Williams, an amiable radical of no mean discernment, recently said: "They fought this war to end all war. Now they are making a peace to end all peace." Those who have been watching the stubborn, misguided, muddled efforts of Congress, who are aware of the disorder and chaos in Europe, who know that there are half a dozen meaningless little wars still going on abroad, are coming more and more to agree with Mr. Williams. The successful termination of the war has removed definitely and perhaps forever a dangerous enemy of order and peaceful progress, but the unsuccessful termination of peace is perpetuating international suspicions and misunderstandings which it will not be easy in the next generation or two to allay. International peace is still a tentative, uncertain thing, and the consequences of the war are not all that were hoped for. The unity of the Allies, so solid during the war, shows disquieting marks of instability; and, in the effort to resume normal life and normal business, there may occur more than one delicate incident to try the harmony of nations which, only a little while ago, had but a single aim. Peace is still in the balance, the issue is still clouded, the position of this country in the family of nations still obscure; and, tho we are sure that never again can such a hideous tragedy be enacted, we feel, nevertheless, that a soldier at the head of the country will give an

Surgeon, Soldier-President?—It is the custom, with the approach of a presidential election, to put forward one's chosen candidate with the assurance that he is uniquely suited to a unique situation. If he is a business man, the prediction is ventured that an era of prosperity and big business is looming ahead and that the candidate is the only one who could guide the ship of state thru the hazardous waters. If he is a lawyer, then it is legislation that is needed and his long experience is inestimable. If he is a scholar, then statesmanship is the paramount issue. As often as not these presidential barkers have gone far afield to prove the indispensability of their special choice. It is with caution, then, that at any time a conscientious individual will undertake to recommend a candidate as the choice *par excellence* when there are

assurance, the lack of which no few feel. Leonard Wood, as a soldier, is not a chauvinist; he is not a bigot, and he carries no chip on his shoulder. He has the reserve of a diplomat, the reticence of a student, the modesty that goes with genuine ability, and these are qualities that would make for international understanding.

Many Wounds to Heal.—But above all, the excellence of the choice is emphasized by the fact that the late war has left the world with many wounds to heal, and it is as a surgeon that General Wood is especially fitted to play an important rôle in this universal healing. It is not legislation that the world needs most now, it is not commercial arrangements that it requires. Europe is in need of food, it is in need of medicines and a period of convalescence. The four years of war have left a mark on the youth of Europe and the generation to come will be an undernourished, nerve-worn, delicate generation at best, and unless America comes to the rescue there may be no generation at all. What Europe will need most urgently during the next four years—perhaps during the next twenty years—will be ambassadors of mercy much more than diplomats: the Red Cross, with its splendid efficiency and vision, and the various organizations for succor and aid that sprang up during the exigencies of war. A journalist of distinction, writing from Vienna to a friend in New York and asking for a Christmas present, begs pathetically for a few cans of condensed milk, none being permitted to adults, and children getting too little of the paltry supply. In the East thousands are dying daily because of a lack of drugs and medical supplies. Whole races on the fringe of civilization are in danger of extinction for lack of proper care. Disease is rampant. Tuberculosis and venereal diseases are menacing the lives of hundreds of thousands. Abraham Lincoln declared the country could not exist half free, half slave. If he were alive now he would declare with equal conviction that the world cannot exist half well, half sick. This country escaped the ravages of the war. It should feel the obligation to rid Europe of the ills which it was fortunate enough to escape. Such an obligation is now upon the country, and with a man trained and experienced in medicine at its head, it would fulfill this obligation

adequately and intelligently. The ever-widening sphere of the doctor makes him particularly fitted for an executive trust that carries so many responsibilities with it. His profession has given him the acumen of the business man, the tact of the statesman, the humaneness of the reformer, the vision of the legislator; and these qualities will stand him in good stead in an office which demands such a versatility of talent as no other office requires. Major-General Wood is a man whom the American people can trust to lead them humanely, wisely and well in this hour of the world's travail.

Starving Armenia and the World's Duty.

Starving Armenia, its people driven from pillar to post by the relentless Turk, its population reduced to a mere fraction of its original numbers, the survivors starved, homeless, suffering, is a case in point. But it is a case which cannot wait upon the fortunes of political change in a far-off country. It is a case that demands immediate attention. For it is not the fate of a single nation or people that is in the balance. It is civilization that is up for judgment. If the world should fail Armenia at this stage, then confidence in the teachings of humaneness, in the prestige of culture is reduced to a cipher. The basis of all modern civilization is the respect for human life. From our infancy we are taught that it is wrong to kill, that it is just as wrong to countenance the destruction of life even if we are not accomplices. Yet, in its indifference to the fate of unhappy Armenia, the world is a tacit accomplice of the Turk. It holds aloof while the victim of the most heartless crime in history is in the throes of death. This alone would be ample grounds on which to impeach humanity, but it is not only a question of human life—it is a question of human intercourse, of morality, of the laws that govern the fraternity of man and man. The spectacle of Armenia is not alone of a race dying, but of a race driven to desperate measures to save itself from annihilation. Eye witnesses, fresh from scenes of that wretched country, bring back accounts that are ghastly in the extreme. Death has become so ordinary a spectacle that children may be seen playing at their games on the highway with the corpses of other little ones only a few paces away. A father was seen

walking toward the market-place in the company of his young daughter. A few minutes later he was seen returning alone, a sack of flour slung across his shoulder. He had traded his child to a Kurd for the sustenance of a few days. He was not ashamed, he was not downcast. He took the only measure he knew, a measure growing more and more commonplace, to save himself from starvation. He had merely imitated his fellows who, in their despair, had grown dull to the dictates of common morality. The wrong, in a larger sense, was not his. It was that of a world which permitted such things to happen without any thought of the ultimate consequences to itself. What will be the outlook of these children playing on the highway when they grow up? What micrometer will measure the social conscience of the race bred by a father who is driven to barter his daughter for a bag of flour?

It is not a local question, affecting only the Armenians directly concerned. It is a question affecting immediately the contiguous countries, one which is bound to poison the civilization of far-off countries. Thousands of miles away nations tremble in fear of the virus of Bolshevism that is coursing in the veins of Russia, but they feel themselves secure against the taint of a poison more destructive than the most deadly political heresies. Are we so sound that we can expose ourselves to the contagion of such moral lassitude? And, if we are, can we stand aside and indifferently look on as the texture of morality is torn to shreds? The world cannot allow such indignities to be perpetrated against its self-respect. It cannot allow fellow-humans to be driven to measures that destroy all the careful building of centuries of civilization. In self-defence, if for no other reason, it must come to the aid of Armenia.

to the services of two physicians in the case in scathing terms. "Each of these witnesses," reads the memorandum, referring to the physicians, "after testifying to material facts learned by him in the treatment of the plaintiff, admitted on cross-examination that he had been employed previous to the trial by the defendant to testify as a medical expert for hire at the trial. Such an utter regard of the ethics of the medical and legal professions cannot be passed by without serious condemnation by this court. The relation of physician and patient is peculiarly confidential and is safeguarded by law in the interest of the patient by forbidding disclosures by physicians of material and necessary facts, the knowledge of which was gained in the treatment by the physician of his patient without an express waiver of the patient as provided in the statute."

In a word, both of these doctors, after treating the injured man and obtaining his confidence, offered their services as witnesses to the man their patient was suing and betrayed the trust of their patient in return for the reward they expected to get for their services to the brewer. We can hardly recall a more flagrant case of the violation of the dignity of two callings in a single instance, and we feel that Justice Guy is well justified in his belief that it is a question which the Bar Association and the medical societies ought to take up. This is but an individual instance, but there are, unfortunately, numerous cases of the same nature that come up in the courts every week. The practice of medicine lends itself less easily than any other profession to the shrewd and unscrupulous methods of the fortune hunter. In its origin scientific and humanitarian, it has been the custom since the beginning of time to keep it within the bounds prescribed by its dignified origin. It is the one profession which men and women enter for more than the mere reason that they can get their living by it. It is regrettable, therefore, that here and there an individual, with less respect for the profession than has always been felt by both the community and the doctor, makes an adventure of his career as a physician and introduces methods which in some callings are not regarded as altogether culpable. But the methods of no profession correspond to that of the physician, cer-

Politics and Medicine.—Coincident with the findings of Jeremiah F. Connor, Moreland Act Commissioner, in his investigation of the State Industrial Commission, comes a memorandum handed down by Justice Guy which is of special interest to the profession. Sitting in a case in which a man brought suit for injuries sustained when a brewer's wagon ran over him, Justice Guy made it a special point to refer

tainly the tactics of the stock exchange and politics are out of place in it, and it is necessary that the public understand that these practices are nowhere condemned so completely as they are by the legitimate practitioner. Yet, despite all precautions, there arise instances such as that which Justice Guy anathematized so justly, and it is high time that the authorities united in a thoro effort to stamp them out of a profession that is perhaps the cleanest profession of all. It is with deep regret that a physician reads of the doubtful dealings of a brother practitioner and, if it depended solely on the members of the profession, such mal-practitioners would be promptly driven from the ranks. Unfortunately, the physicians are powerless to achieve this without the cooperation of the civil authorities, and this cooperation has never been a perfect thing.

It is encouraging, however, to read the report of Mr. Jeremiah F. Connor on his investigation of the State Industrial Commission, the outstanding circumstance of which, in his words, is that "injustice and frauds" have repeatedly been practiced on injured employees. These injustices and frauds have their basis in the fact that doctors with little more than political influence to recommend them come into positions in which they control a monopoly of the cases of injured employees and they exercise this monopoly with little concern for the interests of the injured. To remedy this situation, Mr. Connor suggests that these men be supplanted by a "panel of physicians" appointed upon the advice of recognized medical societies, to be revised from time to time, and only men of prominence and of unquestioned probity to be employed thereon. Such a course, he suggests, would eliminate definitely the "runner" and the "ambulance chaser," and he suggests further that it be made a misdemeanor for anyone to receive a fee in connection with the presentation or collection of a claim for compensation unless a fee has been authorized by the Compensation Committee. The course Mr. Connor suggests seems a highly commendable one and can be approved by every physician with the faith that it will go a long way to solve one of the problems that has confronted and disquieted the profession for a long time.

Motor Accidents and Defective Laws.

—Broadway pedestrians were startled one night recently to see a taxicab, beyond control, suddenly swerve toward the sidewalk, mount the curb and fling itself thru a plate-glass window. The driver was instantly killed and two passersby were seriously injured when they could not get out of the path of the rampant cab. It developed, on investigation, that the driver of the cab had an artificial right eye and it was judged that this was the cause of the accident. The machine had a right-hand drive and the chauffeur had to lean far out of his car to observe the traffic behind him. Thus another fatal accident was added to the long list of preventable motor accidents and, as in many instances, blame is not to be laid at the door of the driver of the car: it should be attached to the loose regulations which make it possible for men to assume the responsibility of pursuing a profession or a pastime which they are physically unfit to pursue. At best, there is enough carelessness in driving on the part of those who have no handicaps to overcome; but the amazement of the authorities at the mounting figures in motor accidents is hard to understand in view of the carelessness which permits men and women to expose the lives of pedestrians to danger who are physically unfit to be trusted with the guidance of a car. If a statistician were to examine the circumstances surrounding a given number of accidents of this sort, he would discover that a large proportion of them is due to incapacity rather than carelessness. The cursory examination to which applicants for a driver's license are submitted is inadequate. During the war the air-fighters, tho it was only their own lives that were in question, were obliged to pass tests so severe that only a small proportion came thru successfully. The civilian driver, with lives of others in his care, is dismissed with a trifling examination. It is altogether possible for a man with a weak heart, or an epileptic, or a man with inadequate vision, or one with the poorest muscular coordination, to obtain a license with ease, provided these defects are not immediately perceptible. So long as conditions remain as they are, there should be little surprise and certainly little indignation on the part of the authorities if accidents seem to multiply.

rather than decrease. All the modern inventions to prevent railroad accidents are valueless if the human element is at fault and all the caution at the command of traffic officers is impotent in the face of incompetent drivers, drivers incompetent less because of ignorance than because of physical defects. Unless precautions are taken against these physical disqualifications, it is not to be expected that the epidemic of motor accidents will subside.

respite from their sufferings. That this was possible was due in large part of course to the generosity of numerous benefactors, but in no small measure credit goes to those who do not forget, who, despite the repetition of the daily contact with suffering, have never grown callous—the doctors and nurses in hospital service. Their efforts to make Christmas a happy occasion for their patients is an eloquent contradiction that nurses and doctors, from their constant as-



Christmas in the Hospitals.—What man or woman has ever left a hospital, after a serious illness, without feeling that hereafter it will be impossible to pass any such institution without bowing his head in humility before the splendid and faithful service that is to be found within its doors, without giving an affectionate thought to the many suffering ones who are lying there without any of the privileges and liberties of those outside? And how many men and women remember their vow one year later? It is extraordinary how quickly the human brain forgets. Christmas was celebrated at the hospitals recently. It was celebrated joyfully and many ailing ones enjoyed a

sociation with illness and death, grow callous and indifferent. Such a charge, tho often repeated, is a perversion of the fact that they merely remain level-headed and cool on occasions when the average person loses his head, and it is fortunate for the patient that this is so. It makes it possible for him to receive the care and the precise treatment which an hysterical sympathizer would be incompetent to offer. But that both physicians and nurses remain always sensitive to the plight of their charges must have been evident to the thousands of sick who spent Christmas in the hospitals of the country. Thanks to the doctors and nurses few "shut ins" were forgotten.



EXPERIENCES OF A MEDICAL RESERVE OFFICER WITH THE AMERICAN EXPEDITIONARY FORCE.

BY

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Medical men with the U. S. Army who had conviction as to what would be required of them, or to put it less forcibly, who had ideas as to what they would do when they became part of the A. E. F. soon found that nothing happened as expected.

I left New York in February, 1918, as a member of the surgical staff of Base Hospital No. 3 (Mount Sinai Hospital Unit, New York City). We all hoped, tho we hardly expected this hope to be realized, that we would functionate as a unit within reasonable distance of the firing lines (say 25 miles), in other words as a unit similar to some of the less advanced casualty clearing stations of the English, the advanced units of which were within five or six miles of the front. To our surprise and chagrin at the time, we were assigned to a place about 40 miles northeast of Bordeaux—as far from the firing line almost as it was possible to put us. Add to this disappointment the fact that when we arrived at our destination we found a place only partially

completed, without a satisfactory water supply or lighting arrangements such as might be expected in a large rear hospital, the grounds littered with rubbish, and it is not difficult to picture a very disgusted set of men. The enthusiasm with which we set out, dampened somewhat by what seemed to us a very severe overland trip from Havre to our destination, fell to the vanishing point.

A few words about the trip may prove of interest. We set out February 6, 1918, and were agreeably surprised in finding ourselves on board the large trans-Atlantic liner "Lapland" (18,000 tons). Our trip was very rough and stormy, so rough, in fact, that half a dozen of our life boats were smashed, our protecting gun put out of commission—and the ship's hospital flooded. About 250 Serbian volunteers who were returning from the United States to enter the Serbian Army thought their last hour had come and were with difficulty restrained.

However, after losing most of our convoy we finally reached the neighborhood of Ireland, where we cruised aimlessly about, not daring to enter the Irish Sea because of wireless warnings (so I learned later) that submarines were very active in the neighborhood of Liverpool, our destination. After three days we were met by seven very welcome destroyers who convoyed us to

Glasgow. We were told later that the destroyers had been on the lookout for us for two days and that it was rumored that our ship had been lost.

Something of submarine activity at this time may be imagined when the reader is reminded that we left New York about the time the *Tuscania* was sunk, arrived at Glasgow about the time the *Caligaria* was torpedoed and crossed the Channel from Southampton to Havre the day after an

this time we lived in our clothes, slept (or tried to) sitting up—froze, ate tin rations and drank French wine or coffee prepared with little alcohol stoves some of us had had the foresight to bring along (against orders).

We finally arrived at the Monastery of Vauclaire, built in the 13th century by the Chartreuse Monks, and converted by the French Government some years before into an insane asylum. (Fig. 1.) It was, how-



FIG. 1. The Chartreuse Monastery of Vauclaire near Monpont—as it was before its conversion into a hospital.—Built in the 13th century under the protection of the Talleyrand family whose coat of arms are still in the entrance hall of the refectory.

English hospital ship was sunk with the loss of many lives (rumored 100).

We arrived at Havre one afternoon, left the rest (?) camp in the midst of an air raid at 4 A. M., walked to the railroad station about two miles away in a drizzling rain and boarded a typical French compartment train. Orders as to our route and destination were handed to our commanding officer with the cryptic remark of "Good luck to you—God knows you need it"—and we did, for it took two days to make a trip that should have taken eight hours. During

ever, left for us to complete the job and our enlisted men, among whom were carpenters, plumbers and electricians, did yeoman work, preparing the place for the reception of patients, the first convoy of whom were received in the middle of April, about six weeks after our arrival. (Fig. 2.)

During these six weeks the medical officers were not altogether idle, for the country for miles around was absolutely bare of physicians and they were called upon to do all manner of work, from the handling of sick infants and pneumonia cases to offi-

ciating at difficult obstetrical cases, treating fractures and doing operative work of all kinds.

Our first convoy consisted of about 360 cases that had been operated upon at advanced hospitals. Subsequent convoys frequently consisted of patients who received their first operation at our hospital. Especially was this the case during the second battle of the Marne and at some stages of the Argonne battle, during which the advanced hospitals were at times swamped.

assistant surgeon, anesthetist, two nurses and two operating orderlies, there was quite a loss of personnel at the hospital.

Surgical work at the base differed greatly from that at the front. The base had the complications to handle: innumerable compound fractures, secondary chest and joint infections and at times secondary operations for the removal of retained foreign bodies. In addition there was surgical work similar to that in civil hospital, for base hospitals (and this was especially true of Base 3)



FIG. 2. Base Hospital 3 almost completed. Note that the monks' cells on only one side of the quadrangle remain. On the side opposite the cells, buildings similar to those at the end were erected before we arrived.—The building in the center was the main kitchen.

At the height of the Argonne fight our hospital, originally organized to handle 500 men, took care of over 2,800 at one time. Of course additional medical men, nurses and enlisted personnel were assigned, but the staff was never adequate, which meant that every one was over-worked, for patients were never neglected. What made the problem still more difficult during the height of the fighting from June to the armistice, was the temporary (a very indefinite and convenient army term) detachment of operating teams for service at the front where the need for them was urgent. As each team consisted of a chief surgeon,

are in the center usually of large training camps. One who has had experience both at a base and at the front can consider himself extremely fortunate.

I was lucky enough to see some work at the base before being sent forward in charge of an operating unit and was doubly fortunate in that I was able to return after the armistice and see the result of the work done in the forward areas. When one has worked under pressure at an advanced operating post for twelve (often many more) hours, day after day, one marvels at the remarkable results obtained. American surgeons were fortunate in being able to profit from

the three years' experience of French and English surgeons—many a doughboy owes his limb or life or both to the fact that we entered the war in 1917 instead of 1914.

A word as to the French people among whom our lot was cast. The village was the center of a thriving agricultural and wine district; it had its market day once a week to which peasants within a radius of ten miles brought things for sale—eggs, butter, all manner of food stuffs, live stock,

cated French living distant from the large centers. I happened to be visiting a family one afternoon and noticed an open Chopin score on the piano. The young lady of the house, who spoke English, mentioned that she didn't care very much for the American type of music (she had been entertained with rag-time and jazz) and asked me if we Americans had ever heard of men like Chopin and Liszt!

After a short stay at the base I was ordered to American Headquarters with a team and from there to Paris. At Paris we expected to be ordered to Chateau Thierry, but the need for surgeons at American Red Cross Hospital No. 1 at Neuilly, near Paris, was so great that we were sent there and remained at that point about ten weeks. This was the hospital in which Mrs. Wm. K. Vanderbilt was interested and where she might have been seen every day actively at work among the wounded. It was the hospital of which Colonel Blake was in charge at the beginning of the war. After he left it, he was placed in charge of American Red Cross Hospital No. 2 in Paris proper.

We arrived at the hospital about 2 P. M. and were put to work at once, operating until midnight. On our arrival there were about 200 unoperated men lying in the corridors of the hospital, the number increasing every minute. This was June 6th, while the severe fighting at Chateau Thierry and Belleau Woods was in progress. We relieved men who had been operating day and night for five days, some of whom had not had their clothes off during this time. The first batch of men operated upon by us were from the famous 5th and 6th Marines. Many of them were badly wounded but all had plenty of pep left. Their usual greeting was "How long do



FIG. 3. The Author.

products of the loom, etc. During such times the town was lively enough—at other times it was like any typical small village. However, it can truthfully be said that after the arrival of the Americans the place livened up considerably and became quite prosperous. The people were very hospitable and many a pleasant hour was spent by a number of us at the various homes. It is curious to note the peculiar views of Americans held by many of even the edu-

you think I'll be laid up," or "Fix me up quick." Patients reached the hospital from 8 to 24 hours after being wounded, altho the actual trip was only 2 hours (40 miles). However, the wounded were so numerous in this fight and the congestion so great, that there was considerable delay. During the German offensive of July 15, 1918 and the Allied counter-offensive of July 18, 1918, the interval between the time the soldier received his wound and his arrival at the hospital, was much less.

By this time the profession is familiar with the methods of handling war wounds and the importance of removing every bit of foreign matter and of damaged tissue—what is technically known as a wide and thoro debridement—and of leaving the wound wide open. Fractures of lower extremities were treated whenever possible by extension, with the aid of a Thomas or Hodgen splint, suspended from a Balkan frame or some modification thereof. Most wounds were Carrel-Dakined. While the end results of our compound fractures might not be all that could be desired, most of them will eventually get well, with serviceable limbs (albeit the convalescence may be long); considering the severity of many of these injuries, that is saying a good deal.

Mention has been made of the doughboy's desire to return to duty as quickly as possible. Some, in fact, were so keen about this (tho evidently suffering from severe wounds) that they would say that their wounds didn't amount to much in the belief that this statement would mislead the doctor and induce him to return the soldier to duty the more quickly. Occasionally one would say "I guess I'm done for"—and he usually was when he said this. Each one had to be handled differently from a mental standpoint; some you jollied and joked with,

while with others you almost agreed. My policy with a badly wounded man was to talk first—beat him to it, so to say, for one could usually see the look of worry in his eyes. I'd smile, but, as Sam Bernard or Lou Fields might remark, only "from the face out"—and say—"Well, Buddy, they tried hard to get you this time, but they didn't quite succeed; we won't let them get away with it." Then we'd have a little argument about it and end up by agreeing that we were going to fool the Dutchman and give Buddy another whack at him. No time was wasted during this confab, for the nurses and orderlies were getting him ready for operation while we were talking and the assistant was starting the anesthetic, so that the last thing the boy thought of was how he was going to get even, and this was frequently responsible for some very violent dreams.

At the Neuilly Hospital we also operated upon Frenchmen. They were much older than our boys; in fact, it was nothing unusual to have men from 50 to 60 years of age on the table. (It had been a long war for the French and every available man was on the job.)

I can add nothing to what every one knows about the air raids over Paris and the work of the long range German gun, Big Bertha. I looked forward to my first experience with an air raid and was considerably mortified one morning to learn that I had slept thru one, tho the barrage was, according to my colleagues, a very violent one. (We may have worked hard and not always had enough sleep, but when we had the chance, we certainly *could* sleep!)

Big Bertha bothered no one very much. It was a little uncanny to be working at the operating table, hear a crash and know that

in exactly twenty minutes there would be another messenger that would strike Paris somewhere and do damage—no one knew how much—nor where; one always figured that the chances were against it striking the exact neighborhood in which one happened to be. This was a sort of fatalism that was common and was regularly present with the men at the front—after their baptism. It seemed that Big Bertha always got busy when the Germans started a big offensive, exemplifying a phase of German psychology, for the German war leaders figured

he said was the feeling of the Frenchman in the street when the Americans arrived; and this was, contrary to generally accepted opinion, a feeling of regret; for it was thought that we had come too late and that the war could only be prolonged with that much more unnecessary suffering; in fact, the stage was reached where they felt it made little difference whether they lost or won, for they were war-weary after three years of intense suffering. However, after the brilliant work done by our boys at Chateau Thierry, the feeling changed to one of



FIG. 4. What is left of Seicheprey. Before the Battle of St. Mihiel, this was No Man's Land.

that by shelling Paris while making a big offensive they would scare the Parisians (and this would mean all France) into believing that Paris would soon fall. But Germany was as woefully mistaken in this, as in most if not all her interpretations of the effects of her acts upon the allied nations, especially the French.

One day at Neuilly we had as guest an American who had lived many years in Paris and whose children were born there. In an informal talk, he gave voice to what

hope, and after July 18th, to one of certainty that the enemy would be beaten. It must not be forgotten that this was only the opinion of one man, albeit one who was trained at judging mass feeling. He also mentioned what may be of interest to those who want everything German in the United States relegated to the scrap heap, that his children who were being educated at a private school in Paris, were being taught German without any request on his part or notification to him that this was being done.

All during August, 1918, we heard of preparations being made for a big American drive in the neighborhood of Verdun. On August 21 we were ordered to Chaumont (G. H. Q.) and from there to Evacuation Hospital No. 1, north of Toul, about eight miles south of Seicheprey (Fig. 4), the latter being the front line in this sector. Enroute we were held up a few hours at Neufchateau, the train running true to the usual schedule by being a few hours late. Waiting at the station were many First and Second

around us were full of fighting men. Those adjacent to the hospital held the 5th and 6th Marines. All night long, guns, munitions and men were going forward; during the day all signs of activity were gone. This continued till THE DAY, which proved to be September 12th, arrived.

In the interval between our arrival and the beginning of the Drive, many of us, not being very busy, went forward on exploration trips to the front, making general nuisances of ourselves. We went forth fully



FIG. 5. Enlisted men of the Medical Corps U. S. A., assigned to look after mustard gas cases, clothed in anti-mustard gas suits.

Division boys joking one another as to who really did the work during the fighting at Chateau Thierry in May and June, 1918, each group insisting that had it not been there, the other would have "knuckled under."

When we arrived at Evacuation Hospital No. 1, near which Lufberry, the American Ace, met his death, we found very little to do, but soon realized that we were part of the preparation necessary for some big movement rumored to occur early in September. (Of course the Germans knew nothing about this!) The woods all

armed with tin hats and gas masks and without Sam Browne belts, all of which precautions were obligatory. Sam Browne belts were discarded because they labeled the wearers as officers, for whom German sharpshooters were always on the lookout. We explored ruined towers at and just behind the front lines, saw monster camouflaged guns hidden in the yards of what once were dwelling places (Fig. 6), peeked thru the periscopes of lookouts, and saw the German lines and the smokestacks of Metz. We saw and felt the mud, walked and slipped on the duckboards in the trenches,

chatted with the lookouts and were told by them that they didn't understand why so much fuss was made about taking Mont Sec (which was right in front of us—one-half mile northwest of Seicheprey); they were ready to take it any time! (I was told that it cost the French 60,000 casualties to hold it 15 minutes the year previous, but the doughboy, as we all know by this time, had supreme confidence in himself, and this confidence was rarely misplaced—certainly not on this occasion, for on September 12th he took Mont Sec with little trouble and relatively few casualties.)

and four in the afternoon and that it was fairly safe to walk about at other times. However, it did not pay to be too cock-sure about this as things did not always happen according to schedule. There were many wire entanglements here which were toys compared to those of the main resistance lines of the Germans in the neighborhood of Varennes, to be mentioned later.

On our way to Beaumont, the village next to Seicheprey, the road makes a wide curve known as "Dead Man's Curve," which we were told to avoid as it was under enemy observation all the time and was frequently



FIG. 6. Main Street—Beaumont. Before the commencement of the St. Mihiel Drive these shells of French houses sheltered large calibred guns carefully camouflaged.

Some idea of what must have taken place in the neighborhood of the hospital during the period before our battle line became more or less stabilized (sometime during the latter part of 1914) can be imagined by the condition of the ground, which was riddled with shell holes, most of which had been there for years. Of course there were also new shell holes, for not a day passed, even in this so-called "quiet area" without a fair number of shells being sent over.

At the time I took my first trip over this area I was informed that the German "strafe-time" was usually between three

shelled. We avoided it going forward but not returning, as to avoid it meant going thru entanglements and brush.

Every American soldier with whom we talked expressed the conviction that the American Army would be in Metz before winter. We all know how well this prediction was verified.

One did not have to go to the battle line to get some of the excitement of war, for enemy aeroplanes were constantly over us and we occasionally saw air fights, or more commonly, near air fights, as neither side at this time seemed anxious to lose aero-

planes. At one time we saw three of our sausage balloons which were anchored about five hundred yards behind the lines go down in flames as a result of clever work by a German aeroplane, which darted out suddenly and unexpectedly from behind a cloud and did the work before any of our men could get near him. However, we had the satisfaction of learning later on that this man was brought down as he was trying to get his fourth balloon. Of course it was not pleasant for us to see our own balloon brought down in this way, but we

all night long supplies were going forward along the road in front of the hospital. This traffic was so heavy as frequently to keep us awake. The majority of the guns going forward were the famous 75s and 155s of the French, but there were rumors of much larger guns in the forward areas, such as 14" naval guns. We were even told that there was a 22" gun, a tale that was never verified and probably not true. There were none of these at this time, so far as we knew, tho after the armistice was signed I was in a gun factory where I was



FIG. 7. A German dugout just captured by American troops. American officer directing the taking of measurements of the dugout.

had to look upon it as part of the game and we know that German balloons which were too far away for us to see were being similarly brought down.

We were also made aware that the German is a pretty good shot with his long range guns, for we saw an ammunition dump, situated about two miles immediately in front of our hospital and the same distance behind one of our field hospitals, put out of business by three well directed shells.

Mention has been made of the fact that

told that one of these monsters had just been turned out (it took one year to manufacture).

During the day time everything was hidden and it looked as if nothing could happen, tho the woods all around were full of soldiers and the famous 5th and 6th Marines were in the woods adjoining the hospital, awaiting orders to go forward. The men of the hospital dropped in to pay these boys a call and the boys reciprocated by coming over and giving a fine minstrel show a few

nights before they went into line; we operated upon many of these very boys between September 12th and 20th.

On September 12th at 1.30 A. M., while we were all peacefully sleeping, "Hell broke loose!" We were awakened by terrific shell fire and the horizon to the north of us was one mass of flame. This continued until the morning. At 8 A. M. the wounded began to arrive and from them we learned that the boys had gone over the top at 5.30.

There were many Germans brought in

and views, tho of course this was not strictly according to rules. Also we realized that the answers these men gave were probably more or less such as they felt we might want to hear. One German lieutenant who had been wounded once before, when asked whether he had been told that prisoners would be badly treated by the Americans (we had heard that such rumors had been spread) answered in the negative, and that he, for one, was glad he was with us. Another said that the German people were satiated with war and that the people had



FIG. 8. Wounded German prisoners.

wounded. (FIG. 8.) To show how little a private in the ranks knows of his whereabouts, one of these prisoners told me that he had been taken prisoner at a place which I now know remained in German hands up to the time of the armistice. Naturally we all felt elated at hearing that our boys had advanced so far, but we soon learned that the man was mistaken; however, it had been a great day.

It was but natural that we should question our German prisoners as to their feelings

nothing to say or it would have been long since over. These prisoners were well dressed and shod, and looked well fed, very different from some I had seen in April, six months previous, which shows the difficulty of drawing conclusions from isolated instances.

We had at this time visual evidence of just how hard put the Germans were to obtain rubber, for a captured German ambulance brought to the hospital had iron wheels in place of rubber tires; each wheel

was really a wheel within a wheel, the two being separated by heavy spiral springs.

By the end of September the battle line in this neighborhood had again become more or less fixed and the pressure of work at the hospital had subsided. I made use of this quiet period to visit many of the towns just taken by the Americans, among which were Essey, Nonsard, Thiaucourt, etc. Our trips forward were always interesting as we were dependent upon whatever transportation happened to be going forward at the time. Most frequently it was a lorry which was carrying food or some other material. "Lorry-hopping" was the term applied to seekers of excitement such as we were at that time. Sometimes we were fortunate in getting a lift on an ambulance or a Ford car. Occasionally a motor cycle with a side car would help out and on one occasion we went forward on a little narrow gauge railroad taking ammunition to the front.

I can well remember with what peculiar feelings I heard the story of the driver of a Ford ambulance, which was our taxi at that time and without a windshield. He told me that the windshield had been taken away by a piece of exploding shell the day before while making the same trip, the shell at the same time killing the driver.

The roads were in terrible shape, shot up and muddy, but we were told that compared to their condition on the day after the offensive started they were wonderful, for on that day it took eight or more hours to go about five miles and one was never sure that his car wouldn't end in a ditch. Engineers followed the attack closely, trying to make the roads passable as rapidly as possible, using the stone from the ruined houses for roadbeds.

Going thru the houses in Thiaucourt we were struck by evidences of rapid German

evacuation such as tables upon which uneaten food remained.

In spite of the grim business of war, the doughboy loses no opportunity to get a little fun out of his work. I saw one cleaning his mess outfit while wearing a plug hat, salvaged no doubt from one of the rapidly evacuated homes.

At Norroy I participated in the excitement of seeing a town within the German lines in the process of being blown off the map by some artillery six miles to the rear, the fire of which was being checked up by French artillery officers in the dugout in which we were. This town was being treated in this way because it was suspected of sheltering the guns which were shelling Pont-a-Mousson. As we had just passed thru the shelled area of Pont-a-Mousson to reach Norroy, it was with some satisfaction that we saw the houses of this town go up in the air.

On October 15th I was ordered forward to an evacuation hospital in the neighborhood of Verdun. This hospital was planted in the mud. It seemed to rain all the time and boots were a necessity. The operating room here was a long hut containing eighteen operating tables placed side by side. Each surgical team had three tables. The teams worked in twelve hour shifts, six teams by day and six by night, the shifts changing every ten days or so.

No matter how rushed we were the work here had been so systematized, and the enlisted men and nurses so thoroly trained and so willing, that the work could be done very rapidly and satisfactorily and without confusion. In spite of the number of people working in this big operating room it was surprising how quiet everything was. It is remarkable how little all this affected the wounded doughboy, who might be lying on

an operating table awaiting his turn; for tho on turning his head to the right he might see one surgeon operating upon an abdomen, and to the left another upon a shattered limb, nothing seemed to bother him much as long as he had a cigarette. As a matter of fact, he felt that for some time at any rate he would have a comfortable bed to sleep in and be free of the dirt and mud and strain of the trenches.

I had heard so much of the famous Citadel at Verdun that during one of the quiet periods I obtained leave to visit it, and while walking thru the streets of the city experienced the sensation of shells exploding

hospital dropped some leaflets which told the American soldiers how foolish it was to continue the war when the German people were anxious for peace and ready to make it and that they should stop fighting to avoid further unnecessary bloodshed. About the only effect this propaganda had on the boys was to make them feel that they had the Germans "on the run."

While we felt rather secure in our location we occasionally were reminded that there were possibilities of excitement inasmuch as an evacuation hospital near us had been hit by a shell, severely wounding several of the personnel.



FIG. 9. First aid station in the woods.

near me, as it was a habit of the Germans to throw some gas shells into the place every day at four o'clock. They were a little ahead of their schedule that day for it was only three when they sent them over. The Citadel is really a large underground city which has existed many years and is capable of accommodating ten thousand people at a time. It has a hospital, theater, church and everything necessary to make that number of people comfortable.

About October 26th a German aeroplane circling about in the neighborhood of the

A few weeks before the armistice was signed I made my last move forward to a mobile hospital pitched at the foot of Hill 240 in the Argonne Forest, around which some of the severest fighting of the war had taken place in the month previous. One could see plenty of evidences of this, for the ground was full of shell holes; in fact it was impossible to pitch a tent without enclosing a shell hole.

All about us were German built dugouts; those in the woods were filled with the souvenirs dear to the heart of the doughboy

—casings of exploded shells, German rifles, bayonets, caps, coats (from which most of the buttons had already disappeared), canteens—in fact, all material now generally described by the term "German hardware."

One saw graves innumerable. Buried Germans and Americans in twos and threes and singly. One saw wrecked aeroplanes and it was not difficult to sense the terrific struggle that must have taken place.

It was so cold here that we were forced to operate with sweaters on. When we went to bed we had more clothes on than

everything had suddenly become almost uncomfortably quiet.

I remained at this advanced station for two weeks after the armistice was signed and there being practically nothing in the way of surgical work, I did a little Cook's touring of the front. This was encouraged by the authorities even before the signing of the armistice, for in published orders they recognized the fact that the officers wished to take advantage of opportunities which would probably never recur.

During my journeys of exploration I was



FIG. 10. American soldiers camping in the woods.

when we were up and about. As a matter of fact we had to undress in the morning.

We were busy here until the signing of the armistice and for a few days thereafter. The night of the armistice was celebrated by us in a rather quiet way. One of the boys had gotten hold of some bottles of champagne and after drinking a few toasts we worked all night, for tho the shooting stopped the wounded kept coming in for a few days after the fighting ceased. All about us colored flares which during the fight were used as signals were being sent up by the boys, celebrating the finish. Instead of the noise of the previous days

able at first hand to see the remarkable defense system in the neighborhood of Varennes, which the Germans had painstakingly built up for over four years and which they considered impregnable. There were elaborate dugouts (connected by underground tunnels) electrically lighted, with cement floors, windows with window-panes, good home-made furniture, flower gardens, bowling alleys, music halls, and overhead miles of barbed wire. Each lookout station had a comfortable seat and was absolutely protected. The entire defense was something at which to marvel. The Germans evidently expected to remain there

permanently. I visited Monfaucon, the place from which the Crown Prince watched in safety the battle for Verdun; the only thing left in the whole town is the tower from which he viewed this battle.

I visited Dun-sur-Meuse (north of Verdun), situated on a high hill, the roofs of the houses on one level forming the yards of the houses on the level immediately above. The graveyard of the town shows the scars of battle; the "Rest in Peace" on some of the remaining tomb-stones looked queer amid the wreckage where exploding shells had disinterred bones that had been at rest for many years.

At the beginning of the war I had heard a good deal of the expression "Gott strafe England," but it was something of a surprise to me to find this sentence chalked on stable doors and other places at this time.

Standing on the heights of Dun-sur-Meuse one could look north for many miles over beautiful fields showing few of the ravages of war, for after Dun-sur-Meuse there was little artillery fighting, the Germans retreating faster than the artillery could be brought up.

My touring trip was cut short by an order returning me to Base 3, where could be seen some of the final stages of war wounds. Of the work done here I am in no position to write as most of it was done during my absence. When I left, the hospital was caring for about 500 patients and could accommodate 1,200. On my return on December 2nd, there were still 1,000 patients under treatment and the place was able to handle about 3,000. We had actually under treatment at one time 2,800 patients.

From then until our return there was little to do, as the hospital had been taken over by another unit and we were awaiting

orders to return to the States. We greeted the Statue of Liberty exactly thirteen months after saying good-bye to her, and I can truthfully say that it was the liveliest and most eventful thirteen months I have ever spent. I am thankful to have had the chance of being "over there," but pray that the opportunity of doing my bit in this way shall never again offer itself.

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CONTAMINATED AND INFECTED WOUNDS—PRINCIPLES OF TREATMENT—WITH ADDENDA ON ANTISEPTICS AND TERMINOLOGY.¹

BY

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Lincoln, Neb.

Perspective.—In this field of changing methods, perspective is needed.

To view at short range the passing show of old and new methods and materials applying to the treatment of infected wounds is bewildering. Judgment as to how to think and what to do in the matter of treatment is difficult. A study of the history of medicine and of the principles underlying treatment is a valuable corrective for errors of viewpoint and judgment. It corrects the perspective, and sets earmarks of differentiation between the glittering new and the soberly progressive in our art. It is to furnish a degree of perspective that prompts the author to write this paper. Time will apply to it the test of historical judgment.

Principles vs. a Detail.—A new era has come in the treatment of infected wounds. A new surgical specialty is here. He replying "There is no new surgery,

¹ Read before the Nebraska State Medical Association meeting, May 19-21, 1919.

merely another microbe killer," has the short range viewpoint. He is absorbed in a mere detail and is unmindful of the underlying principles on which it rests. Fundamentally the newer treatment of infected wounds is not one of antiseptics, but rather of bacteriologic and surgical problems.

System of Treatment.—Few of the principles and methods of treatment herein set forth are distinctly new. The combination of these principles, and methods, old and new, into a therapeutic system with a technic adapted thereto, having thoroly modified our surgical methods, the clinical course and the results of treatment has forced the category of contaminated and infected wounds into a new surgical specialty. The one principle, that of bacteriologic control, is new in general surgical practice. This principle is as a compass without which we are lost in a sea of difficulties. The results of treatment are decidedly new. Successfully applied it gets union in the wound by primary intention, and fibrous scar is disallowed. It is superiority of achievement in degree and in kind, that has opened the new era.

Training and Organization.—To surmount the difficulties of carrying on the treatment demands special training in surgery, bacteriology, antiseptics, nursing, and in organization, as well as patient industry to mobilize these coordinated branches into an effective therapeutic unit. Without special training and unit-control, failure awaits effort; and discredit, the surgeon and his staff.

Wound History.—This paper covers the treatment of the open wound. The periods in the history of such a wound harboring pathogenic organisms are:

- (a) the period of contamination,
- (b) the period of infection,
- (c) the period of closure.

Principles of Treatment.—The principles of wound treatment in the pre-inflammatory period or the period of contamination are:

- (a) mechanical cleansing,
- (b) closure, and
- (c) immobilization.

For cases constitutionally and anatomically unsuited for perfect cleansing by mechanical means as for instance in compound fractures, the principles applying are:

- (a) approximate mechanical cleansing,
- (b) chemical cleansing ("Prophylactic antisepsis of Lister"),
- (c) closure, and
- (d) immobilization.

Purpose.—The inclusive purpose of wound treatment during this period is to shorten the time of healing by:

(a) disallowing the formation of a culture medium for septic organisms in the wound.

(b) disallowing gross scar with union by secondary intention. Thus the treatment is essentially prophylactic against infection and curative by inducing union of the wound by primary intention.

Bacteriogenesis.—Bacteriogenesis in the wound determines the time limit of contamination and the incidence of infection. The period of election for operating the contaminated wound is the first twelve hours following traumatism. The results of Polycard's study of war wound bacteriology may be taken as average findings. They are as follows:

- (a) At three hours after contamination. Shreds of clothing. Blood infiltration. Many leucocytes. No bacteria or polymorphonuclear leucocytes.
- (b) At nine hours after contamination. Polymorphonuclear leucocytes prevalent. Tryptic digestion of the exudate. Dead lymphocytes. No bacteria.
- (c) At twenty hours after contamination. Increased leucocytes. Bacteria observed. *Bacillus Welchii* is the

first to appear, showing the wound at twelve hours.

Mechanical Cleansing.—Mechanical cleansing involves preparing for an operation as in aseptic work, in doing "débridement" or the removal of the entire wound surface in one piece cutting to a depth of from three to ten millimeters, and then in changing instruments and gloves preliminary to aseptic closure. "Débridement" must be economic, having due respect for important structures to avoid increasing disability by operative trauma. Each important tissue receives necessary first aid repair, nerves are resected, and sutured, tendons approximated and vessels ligated. There should remain freely bleeding surfaces uncontaminated with soil by technical errors in the performance of the work. Failure is due to piecemeal dissection, to carelessness of asepsis, and to insuperable anatomical difficulties such as compound fractures, considerable loss of substance, or the "anfractuous" nature of the wound. To stain the surface with a dye such as brilliant green, is a valuable guide to accuracy in "débridement."

Closure.—Closure of the wound surgically is pursuant to "débridement." The wound may be closed by:

- (a) Primary suture,
- (b) Primary delayed suture, or by
- (c) Secondary suture.

Primary suture is immediate closure by suture.

Primary delayed suture is immediate suture and delayed closure. The wound is lightly packed with gauze for a few days awaiting final judgment as to the cleanliness before tying the sutures.

Secondary suture is closing by delayed suture on or before the eighth day. Clean wounds closed before the eighth day heal without gross scar.

Results of Primary Suture.—As to the results of primary suture in contaminated war wounds after "débridement" Moynihan gives a fair statement for the British service, and the work of Pierre Duval and Lamaitre gives a good idea of what the French were enabled to accomplish. To quote from Moynihan, "If the operation is carried out with scrupulous exactitude and with something near to technical perfection in cases of small 'contamination' wounds where there is no loss of substance, probably not less than 80 per cent. will heal by first intention. The failure occurs in those cases where a piecemeal removal of the infected wall has been carried out, where, that is to say, there has been a frequent reinfection of the newly made raw surfaces." Pierre Duval, one of the cleverest operators of the French is said to have worked under ideal conditions as to equipment and personnel. Of his primary suture cases, ninety-two per cent. of the soft tissue wounds and fifty per cent. of the compound fracture cases healed by first intention. The average period of hospitalization for his primary suture cases was three weeks, and for his primary delayed suture cases about one week longer. On the service of R. Lamaitre at the Bouloue Evacuation Center, August 2, 1917, to February 3, 1918, there were one thousand nine cases. Of these, seventy-nine per cent. were returned to duty during this period (including February). The average time of hospitalization was twenty-nine days. Eighty per cent. were cases of primary suture, and nine per cent. were of secondary suture. Lamaitre used only dry dressings—no antiseptic. Lerche advocates fixation of the wound surfaces with tincture of iodine after careful hemostasis.

Postoperative Course.—The usual postoperative course is characterized by the ces-

sation of pain in the wound after twelve hours. Spontaneous pain and a rising pulse are the most reliable indications of undue closure. This circumstance should lead to an examination of the wound for tenderness away from the stitches and if progressive to their removal. Tenderness may be due to hematoma as well as to inflammation. The temperature may rise to 101 degrees for a few days. Without concomitant developments it should not cause alarm. To bury the end of a silkworm gut in the wound is good practice. At the end of twenty-four hours it may be removed and cultured. If a culture of virulent organisms is discovered, more especially of an anaerobe or of streptococci, the stitches must be removed forthwith and the wound opened.

Rules of Practice.—Experience has shown that for primary closure to be safe and successful a few special rules must be obeyed in pursuing the general plan of treatment. Among them are the following:

- (1) The surgeon must have continuous oversight of his cases for fifteen days after operation.
- (2) Do no primary closure if the general condition of the patient is bad.
- (3) Do no primary closure if doubtful of the primary cleansing being sufficient.
- (4) Do no primary closure in ordinary or aggravated cases of compound fracture.
- (5) Depend on inspection in tracing a wound, never use a director.
- (6) Hemostasis must be so perfect that hematoma will not form.
- (7) Tension on the sutures is to be avoided. Vaucher by cultural methods sets forth the bacteriologic situation as related to wound closure.
 - (a) If the wound is sterile it is safe to close.
 - (b) If the cultures show no anaerobes or streptococci, and only the commoner

aerobes, the closure is a safe condition.

(c) If the cultures in milk show anaerobes with or without aerobes but no streptococci, the local and general condition of the case must be watched closely as the clinical condition is the best guide in this instance for safety.

(d) If the cultures show both anaerobes and streptococci never close a wound. It is reasonable to suppose that the practical rules of wound closure from a bacteriologic standpoint will be formulated for one section and another, and from time to time, according to the incidence and relative virulence of microorganisms producing wound infections.

Immobilization.—Immobilization to insure rest of the part by fixation, by extension, or otherwise must obtain after thoro mechanical cleansing, reconstruction of the tissues, perfect hemostasis, and accurate coaptation without tension on the sutures. For bed cases, immobilization with posture to favor return circulation is best secured by an overhead suspension apparatus. The so-called "Balkan Frame" as constructed for the "War Demonstration Hospital of the Rockefeller Institute for Medical Research," New York City, and adopted by the War Department for the use of the army, is unexcelled for the purpose.

Chemical Cleansing.—Chemical cleansing in the contamination period of wound history is "prophylactic and therapeutic antisepsis." Many wounds incompletely cleansed by mechanical measures can be rendered "clinically sterile" by invoking this phase of chemical cleansing. Disinfection in this instance is staging a clean fight between organisms distributed over the wound surface and the antiseptic. In this period the victory is prone to be immediate and in favor of the host, whereas the reverse is true in the period of infection, wherein organisms are entrenched within the tissues.

and are disseminating themselves on the ebbing and flowing streams of blood and lymph. In the ordinary routine of surgical practice, the choice of antiseptics is determined by availability, stability, efficacy *in vivo*, and harmlessness to the tissues from a single application. In general the tincture of iodine fills these requirements well. To get the most effective action from iodine the wound surfaces must be dry. It precipitates in an aqueous medium as in blood and lymph, and weakens in antiseptic power. Its antiseptic power is greatest if the tissues are so dry that it will fix them.

INFECTED WOUNDS.

Principles of Treatment.—The principles of treatment in the inflammatory period or the period of infection are:

- (a) mechanical cleansing,
- (b) chemical cleansing (therapeutic anti-sepsis of Lister and other properties),
- (c) immobilization,
- (d) bacteriologic control, and
- (e) closure.

Purpose.—The inclusive purpose of treatment as it is in the period of contamination, is to shorten the time of healing by:

- (a) arresting all infective processes,
- (b) "clinically sterilizing" the wound, and
- (c) making surgical closure to get union by primary intention.

A notable feature is to abolish from the clinical history of the case, union by the slow, dirty and dangerous process of granulation and second intention, thru superior surgery.

Application.—The application of these principles varies with the infective state of the wound whether it be that of

- (a) gas gangrene,
- (b) phlegmon, or of
- (c) suppuration.

And it also varies with the type of organism whether it be

- (a) aerobic or
- (b) anaerobic.

Incidence of Infection.—Altho extra-limital to our subject, it is revelant here to discuss the question "When is a wound infected?" A definition of infection commonly promulgated among the profession is as follows: "Infection is incident to the implantation of organisms in the living tissues, and their multiplication." This definition tho valid is half revealing and half concealing. It impresses the mind with the idea of the germ being the active agent, and of the tissues as being passive in the matter. It leaves the theory of infection germ-biased and tissue-blinded. To perceive when a wound is infected is to understand the tissue agencies at work in relation to traumatism and to the invading organism. When organisms are implanted in a wound they begin to die, as they do when first placed in an artificial culture medium. The tissues, the blood, and the sera are not favorable media for germ life, and definite chemical changes must have converted the leucocyte laden influx of serum from an inhospitable and hostile environment into a culture medium. Serum in the wound is antirypic at first, and remains so until, with the breakdown of leucocytes, tryptic digestion of it into peptones supervenes. Not until this has occurred is there a receptive culture medium provided for infection to set up in the wound. The chemistry of the living body is such that bacterial invasions thrive only if tryptic digestion has converted the fluids and contused or necrosed parts into a favorable culture medium. A free flow of serum into the wound early after traumatism tends to inhibit the infective process. The salt treatment of

Sir Almroth Wright induces a serum flow. A wound felting over with fibrin becomes "lymph bound" in the ordinary course of events and is highly favorable to rapid infection. The organisms that endure an unchanged serum best have been termed as a class "serophytes." They include among others, staphylococci and streptococci.

Suppurating Wounds.—1. Mechanical cleansing is the first principle to be applied. It takes into account the wound and the adjacent integument. The integument is always a carrier of infection, and from it the wound may be reinfected, repeatedly unless sufficient devotion to cleansing it from the start is continued. Mechanical cleansing is applied in four particular ways: *First*, foreign bodies and gross tissue waste are removed, as for instance, sequestra of bone, sloughs, hematomata, and gangrenous tissues. These harbor the invading organisms, until cast off by natural processes or by artificial means. *Second*, all wound parts are opened up to the end that liquid infectious waste may be discharged freely and promptly. That is, to make the wound relatively self-cleansing by the establishment of drainage and of counter drainage in proportion to the needs of the case. *Third*, unrestricted exposure of all wound surfaces is provided for intimate chemical contact, in order that chemical cleansing may effect "clinical sterilization" in the shortest possible time. *Fourth*, in case of anaerobic infections no focus is left unexposed or viable. For the elimination of foreign bodies and of tissue outcast, and for drainage, the most radical work short of anatomic errors and overreaching constitutional limitations, makes for the most ideal cleansing, the shortening of hospitalization, and the conservation of life. Into the special surgery of the anaerobic infections, the limita-

tion of our topic forbids entrance. In preparing the wound for chemical cleansing the surgeon uses a special technic. He must go further than the simple requirements of extraction, excision and incision for drainage. The old way of operating anticipated healing by the slow, dirty process of granulation or of healing by second intention. The new way contemplates preparing the wound by a further step, in such a manner as to facilitate continuous chemical action on all wound surfaces, and to conclude healing by primary intention. To operate infected wounds for chemical sterilization requires the highest type of surgical skill guided by a new viewpoint, accompanied by a new technic and anticipated by a knowledge of the practical difficulties besetting the days or the weeks in which universal and continuous chemical contact must obtain in the wound. It is the refusal to appreciate that a new surgical specialty is here and to anticipate the difficulties of infected wound sterilization that frequently leads to failure and brings the practice into disrepute.

2. Chemical cleansing in its antiseptic phase is therapeutic antisepsis in the infected wound as against prophylactic antisepsis in the contaminated wound. To carry chemical cleansing to the point of "clinical sterilization" and accomplish surgical closure and union by first intention is an ambitious undertaking beset with numerous pitfalls that only the specially trained surgeon and an organized force of helpers can circumvent, case by case. One has merely to recall the care, the skill and the organization of forces at his command in doing aseptic surgery to appreciate this in some measure. Furthermore he has to win proficiency in this new work, to know by how narrow a margin success is won—by how much more skill and organization are

sloughing, inflamed wounds made clean, than are aseptic wounds kept clean.

For the chemical sterilization of infected wounds, the antiseptic, the method, and the apparatus are to be studied and mastered.

As to the antiseptic none has as yet been introduced which will cleanse the wound in a few applications. It must, therefore, be so thoroly nontoxic at a uniform therapeutic potency that it can be repeated as long and as often as necessary with impunity. Also it must be efficient *in vivo*. It must be more than a bactericide or antiseptic. It must be a cleanser in the full meaning of the term. Wound disinfection ever awaits wound cleansing. Mechanical cleansing falls short in matters aside from bacterial contamination. More or less of solid or semi-solid exudated sloughs, and shreds not removable by physical means are to be voided by chemical agency. The chemical cleanser must be a solvent so powerful that it will constitute a chemical drain. It must complete the cleansing of the wound from the point at which mechanical methods have left it unfinished. The most invulnerable, the deepest and the last refuge about the wound for bacteria must be melted away. The mere bactericidal power of an antiseptic is only one phase of its activities in the wound. In fact, many substances acting antisepically are not direct bactericides. The advantages and the disadvantages of any antiseptic agent have to be measured by its effects on the tissue cells, the sera, the blood, the discharge and the off-castings of disease, the by-products of bacterial growth, etc.

As to the method, it must be standardized and be susceptible to close analysis, so that if the process of sterilization becomes stationary or retrogressive on a day, the fault can be located. It must provide for the

delivery of the requisite amount of antiseptic to the wound surfaces in the desired strength, and with the regularity which will render the wound sterile in the shortest possible time. It must also insure against deleterious side effects of treatment.

As to the apparatus, whatever is adopted must carry on with the method the essentials of treatment, and serve the fundamentals of success.

The fundamentals in the use of an antiseptic are:

- (a) time,
- (b) contact, and
- (c) concentration.

If one considers the multiplicity of relationships between these three fundamentals of success and the three factors in chemical cleansing:

- (a) the antiseptic,
- (b) the method, and
- (c) the apparatus—

it will be evident that errors leading to failure are avoidable only thru specialization in training and organization in personnel.

3. Immobilization of the affected part is a principle of treatment to be observed both in the period of chemical sterilization and of closure. Motion in the wound during the process of sterilization disseminates bacteria along sliding planes of tissue and with the ebb and flow of sero-cellular currents in and about the wound. It also disturbs dressings, disarranges the facilities for carrying on universal chemical contact of the antiseptic over all wound areas. These bad effects of motion apply particularly to wounds in joints, bones, aponeuroses, muscles, and the sheaths of nerves and vessels with their contents. During the process of repair by primary union, after sterilization of the wound, immobilization is a prerequisite of success. Nothing tends

more effectually to break down the healing process than neglect of preventing gross tissue movements. There is a balance of forces during repair, the one working for and the other against union. The wound is never made bacteriologically sterile. Infection is minimized to a degree that invites surgical closure with safety under favoring conditions. One of these conditions is immobilization. Rest to relieve inflammation and to promote healing is an old and much neglected principle of treatment. The full force of its benefits is nowhere better utilized than in the new surgery of contaminated and infected wounds. Some training in orthopedic methods of fixation and in the use of overhead extension and suspension devices proves to be requisite. However, it is the result and not the personal whim in obtaining immobilization that counts.

The general surgeon unlike the orthopedist is not a stickler for immobilization. They, as a class, break over to mobilization in season and out of season. Any surgeon to succeed in this work must leave all prejudices against immobilization behind or failure will be his portion. It is for these reasons, theoretical and practical that the simple doctrine of immobilization is placed here as a principle of treatment.

4. Bacteriologic control is an index of the relative infectivity of the wound. It is had by three processes:

- (a) by the smear count,
- (b) by cultures, and
- (c) by measurements of the surface area of the wound.

Practically the smear counts are the routine indicators, and they are reliable guides after the first twenty-four hours following contamination of the wound. Cultures and measurements are adjuncts for selective use as occasion arises. Experience is requisite

for accuracy in counting bacteria in a smear of wound secretion. Every unit of the organism counts for one, as for instance each coccus in chain formation and the pair in diplococcus. Intracellular bacteria are also counted as being viable. A smear is taken every forty-eight hours from the worst infected part of the wound and at the maximum period after treatment with the antiseptic. If the count shows one bacterium in an average of five fields on two successive days, the wound may be safely closed. Some are closing wounds with a fair degree of success showing five bacteria per field, providing the cultures are negative to streptococci and to anaerobes. No doubt bacteriologic indications for wound closure will be found to vary with times, with regions and with circumstances, but the general basis for closures has been well founded on broad experience and thorough scientific research. The recorded and the charted data of bacteriologic control display the infectivity of the wound and at a glance indicate the course of sterilization, whether progressive, retrogressive or stationary. This record faithfully kept and charted day by day is the surgeon's guide in all cases, and without it he is lost and progressive sterilization becomes a myth in his work.

5. Closure is surgical rather than expectant because the wound can be made ready far short of the time necessary for closure to be effected by granulation. It is not conformable with the intent of the treatment to use chemical sterilization methods week in and week out, month in and month out, until the wound finally closes by its own accord. Such a consummation is ridiculous and rightly puts the efforts to scorn. One should beware of masquerading a pretense of new surgery in the guise

of antiseptics and appliances; the whole adding heavily to the patient's expense and inconvenience to deliver nothing in return except the old surgical results as heretofore. Results must be new in kind. Union by secondary intention must be forestalled. Closure by suture with primary union must supplant it, with a material shortening of the time of healing.

Phlegmon.—The principles to be carried out in the treatment of phlegmonous inflammation are:

- (a) limited mechanical cleansing,
- (b) complete exposure, and
- (c) chemical sterilization.

No extensive operation should be undertaken in a case of phlegmon. Thoro-going incisions, multiple in character, laying open the entire phlegmonous area for the benefits of drainage and of chemical contact are indicated. The most radical surgery for the purpose of exposure, and the most limited surgery of a general operative type meet the crisis at hand best.

Gas Gangrene.—Gangrene is mentioned here for the purpose of classification only. It is beyond the purpose of this paper to review the treatment of special infectious diseases. The principles of treatment as mentioned under "suppurating wounds" obtain here, except that "closure" does not apply under any circumstances in the course of gangrene. A gangrene is never "clinically sterile" until it is unquestionably bacteriologically sterile.

ADDENDUM ON ANTISEPTICS.

The new surgery of contaminated and infected wounds has developed in connection with "tryouts" of antiseptics, and close study of the problem connected with their successful use. When successfully employed, when wound healing was satisfac-

tory, it has been presumed to be incident to therapeutic value in the antiseptic. In some instances this inference has been altogether wrong, and in others partially true. These successes have been due wholly or in part to a more intelligent and a more intensive application of the principles of surgery, of bacteriology, of physiology, and of nursing in their practical bearing on the treatment of infected wounds. The antiseptic in question has never been more than a contributing factor in the final outcome. However, it has been fully demonstrated that the antiseptic is often indispensable to the result. Those who propose to sterilize infected wounds without antiseptics may succeed in many cases, but not in all. Their failures will be the most convincing argument in favor of the intelligent application of the principles of "chemical cleansing." On the other hand, those who anchor their hope of success in antiseptic treatment to a degree that blinds them to the necessity for thoro "mechanical cleansing" on a new surgical basis, will fall short of the most uniformly good results within their grasp. The ideal of the surgeon in this new field should be to make the utmost use of every great principle involved in the therapy and not to allow himself to be drawn from the main issue by pitting one principle against another to see how narrowly he may be able to escape impending disaster.

Requirements of Antiseptics.—The requirements of any antiseptic for progressive chemical cleansing are:

- (a) antiseptic power,
- (b) nontoxicity, and
- (c) efficiency *in vivo*.

The older antiseptics fail in one or more of these particulars. To meet these requirements diligent research has been conducted and as a result many new antiseptics have

been introduced into practice. Some of them have had a transitory popularity while others have come to stay. Among the newer antiseptics that have been well championed are:

Hypertonic salt solution accorded to Wright.

Salt ointment, 5%, accorded to Sargent. Bismuth subcarbonate, iodoform, paraffin ointment, "Bipp" accorded to Morrison.,

The flavine compounds, accorded to Browning,

Eusol, accorded to Edinberg, and

The chlorine group antiseptics, in the forms of

- (a) Dakin's solution, of sodium hypochlorite.
- (b) Chloramine T in neutral soap paste, and
- (c) Dichloramine T in chlorinated liquid paraffin, "chlorcosane," accorded to Dakin.

Dakin's Solution.—Of the new antiseptics, those of the chlorine group stand out as preeminently useful, and of them all, Dakin's solution deservedly ranks first. Its action on the wound is:

- (a) antiseptic,
- (b) solvent, and
- (c) oxidizing.

It is also antitoxic to toxin of bacillus Welchii and possibly to the toxins of other organisms. It is superior as a chemical cleanser. It cleans the wound quickly of necrotic tissues and of sloughs, and cleans where others fail. Chloramine T and dichloramine T are to be preferred in ambulant cases where wounds are fairly free of necrotic elements, and superficial.

"Carrel-Dakin" Technic.—The "Carrel-Dakin" technic in the use of Dakin's solution is the criterion by which other methods of using it must be judged. The exhaustive researches and broad clinical experience of Carrel and Dakin and of their co-workers have established the value of

Dakin's solution and standardized the technic of wound sterilization by it. This is so true that their methods will be the pattern for others to follow in the sterilization of infected wounds for some years to come. Their technic is a systematic effort to adapt every feature of instillation timing of universal contact, and of chemical concentration, to the progressive sterilization of wounds in the shortest possible time. The instillations are timed the same, day and night, for infection will progress as rapidly at night as in the day. They are given at intervals of not more than two hours. The contact of all wound surfaces is effected by adapting the preliminary surgery to the requirements of the treatment to be followed by the appropriate use of apparatus, and by immobilization with the patient in bed. The concentration of the Dakin solution when it reaches the surfaces to be sterilized is required to be the same as it is in the reservoir. To attempt to carry out the "Carrel-Dakin" treatment with the patient ambulant or with miscellaneous nursing and assistance is ridiculous.

Principles vs. Antiseptics.—"Chemical sterilization" is only one feature of the "Carrel-Dakin" treatment for it comprehends all of the other principles of the new surgery of contaminated and infected wounds as set forth by numerous surgeons and set into practice by each in his own way. Antiseptics may come and go, methods and technic may be revolutionized or discarded altogether, but the principles of the new surgery of contaminated and infected wounds will abide and with them a better future for the affected.

ADDENDUM ON TERMINOLOGY.

Principles.—The principles of treatment are variously grouped. There is a

tendency to place them under two heads, (1) surgical methods and (2) progressive chemical sterilization. But this is in reality a grouping of the methods of procedure. It is not a statement of the principles underlying those methods.

Surgical Methods and Principles.—Surgical methods are invoked with the application of all of the principles except with that of bacteriologic control. Mechanical cleansing is effected by methods that are both surgical and otherwise. They are in part operative, in part common manual such as any intelligent person can apply, and in part physiologic methods as by free bleeding and the early exudation of serum in the wound. Immobilization brings in the methods of orthopedic surgery. Chemical cleansing appeals to a special surgical knowledge and skill as a preliminary. Closure in this line of treatment always refers to surgical closure with the removal of any scar tissue that may have grown into the wound.

Chemical Cleansing and Sterilization.—The term "Progressive chemical sterilization" is not an equivalent for the principle of progressive chemical cleansing. The word "sterilization" calls attention to the antiseptic power of the cleanser only. As pointed out the cleanser must be more than an antiseptic. It is called on to finish the cleansing of the wound from sloughs, necrotic tissue, etc., which mechanical methods leave incomplete.

Immobilization.—Immobilization is a principle as well as a method of treatment. It is here placed among the principles of treatment by right of being a unique and indispensable element of success, and of being applied for reasons fundamentally different from those attaching to the other principles.

THE PHYSICIAN AND THE NEW YORK STATE INCOME TAX LAW.

BY

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Doctors must devote so much time in the study and practice of their calling that it is quite impossible for them to give particular attention to matters outside of the profession. This situation was considered by the framers of the New York State Income Tax Law and a law has been framed taxing personal income which meets the exigencies demanding the enactment of the law, and is in simple language capable of interpretation without deep study. All that is required for filling out a return is attention to records of income and expenditures.

The increasing cost of government, and the loss of approximately twenty million dollars excise revenue brought about by the ratification of the National Prohibition Amendment presented an alarming situation in the financial condition of the state and its political sub-divisions. The problem was rendered more difficult when it was considered that real property was already carrying a heavy burden and that system of personal property taxation was being inefficiently administered. Recognized taxation experts of national prominence were consulted by the legislative committees and it became evident that a tax on incomes must be levied. Not only was this conclusion inevitable, but the method was generally recognized as the most evenly distributed form of taxation.

The State Act is similar to the Federal Income Tax statute, but the rates are lower and it does not impose surtaxes. The rates are one per cent. on the first \$10,000, two

per cent. on the next \$40,000 and three per cent. on all sums over \$50,000. The New York State law affects residents and non-residents who have income from sources within the state, and certain estates and trusts.

Income to be Reported by a Physician.

—Fees for professional services whether received in cash or other property are to be reported in gross income. Other returns should be included, such as dividends, interest and profits from sale of real and personal property. Interest on bonds issued by the U. S. Government, the State of New York or any of its political sub-divisions, as well as gifts and devises should be excluded in computing gross income.

Gain or loss on property acquired before January 1, 1919, is found by the difference between the amount received and its market value on January 1, 1919. If the property were acquired after January 1, 1919, gain or loss is shown by the difference between the amount received and its cost. For example, a doctor bought an automobile in 1918 for \$2,000 and on January 1, 1919, its market value was \$1,500. On June 1, 1919, he sold it for \$1,800. His gain or net income from this transaction is \$300. Cost of permanent improvements should be added to the market value or cost, as the case may be, to determine the profit or loss on the sale.

Deductions for Expenses.—The items which appear to be most troublesome to the doctor are expenses which he may deduct from income. This is true especially when his office and residence are in the same dwelling, and when he uses the same automobile for professional calls and for his family.

The Comptroller has ruled that a doctor may subtract the cost of supplies used

in the practice of his profession, expenses paid in operating and repair of an automobile used for professional calls, dues to professional associations and subscriptions to professional journals. In addition to these, the doctor may charge off ordinary and necessary expenses of his business, such as light, fuel, telephone, cleaning and hire of office assistants. There is a distinction between business expenses and certain other expenditures which are not deductible. Books, professional instruments and equipment of a permanent nature are capital investments and are not allowed as business expenses. However, deductions may be made for their depreciation.

This, in a general way, outlines deductible expenses incurred by a doctor and the same principles apply to all other professions. Briefly, all expenses connected directly and solely with the conducting of an income producing business, trade, profession or vocation are allowable deductions.

A doctor rented a house and used a portion of it for his office and laboratory, and he and his family occupied the other part as a residence. According to the rule, he may deduct as an expense the proportion of the rent paid for use of office room and laboratory, but the balance which represents the rent for use of part of dwelling occupied by the family is not a deductible item, as it is a personal, family or living expense. The same principle applies to the cost of maintenance of the automobile, which the doctor uses for making professional calls and also for the convenience of his family. That is, he may deduct such a proportion of this expense as can be properly set aside to its use for professional purposes. Likewise, expenditures may be deducted for light, fuel, telephone, etc.,

which can be allocated to their use for purely professional purposes.

Personal Exemptions.—Recognition is made of certain expenses payable by individuals and these payments are offset by personal exemptions to be deducted from net income.

An unmarried man is allowed \$1,000, as a personal exemption or if he is married and living apart from his wife. A married man living with his wife or with wife in a sanatorium, is allowed \$2,000 exemption.

Each taxpayer, whether married or not, is allowed an additional exemption of \$200 for each dependent under eighteen years of age, or incapable of self-support by reason of mental or physical disability, and solely dependent upon him for support. The State Comptroller has ruled that the exemption shall be granted in the highest class to which he would have been entitled during the year. For instance, a doctor is married on New Year's Eve, hence his status as a married man entitled him to \$2,000 personal exemption or the division of it between himself and his wife, if she make a separate return. If during the following year a child is born, his status that year would entitle him to \$2,200 personal exemption. Suppose on December 31 his wife and child died, this would not effect his personal exemption for that year.

Army Pay not Taxed.—A number of physicians served in the U. S. Army during the year 1919, and a number are engaged in making examinations for the Bureau of War Risk Insurance. This income is excluded from taxation, but the amount received from the government must be set off against the personal exemption allowed the taxpayer.

A doctor receives \$2,000 from the U. S. Government and is entitled to \$2,400 per-

sonal exemption. His U. S. salary was \$2,000. He is entitled to deduct but \$400 from his net income.

Doctors are called upon frequently for gifts to charitable institutions. These contributions are deductible to the extent of 15 per cent. of the net income and the deductions are limited to contributions made to corporations organized under New York laws. "Gross Income," "Net Income" and "Taxable Income" refer to the steps taken in omitting and including items to determine the amount on which the tax is to be paid. The meaning of these terms can be best explained by the following illustration: A doctor received, during 1919, an income of \$12,000, which included \$2,000 interest from liberty bonds. His gross income is \$10,000. He has deductible business expenses of \$2,000 and an uninsured fire loss of \$500, both totaling \$2,500, which subtracted from gross income leaves \$7,500 net income. The doctor is married and has three dependent children under eighteen, which entitles him to \$2,600 personal exemption. The balance, \$4,900, is taxable income, the rate being one per cent. The doctor pays the State Comptroller \$49 tax.

Administration of the Tax.—Tax returns must be filed and the tax paid at any district office of State Income Tax Bureau or the State Comptroller at Albany, not later than March 15, 1920. An extension of time to file the return may be granted in the discretion of the Comptroller under certain circumstances. Penalties are imposed for failure to make a return and for evasion of the tax. Employees of the Comptroller's office are forbidden under penalty to divulge contents of a return. Further information may be obtained from the District offices of the Income Tax Bureau, located at Albany, New York City,

Brooklyn, Bronx, Jamaica, White Plains, Buffalo, Rochester, Syracuse, Utica, Elmira, Binghamton and Kingston.

THE TREATMENT OF PNEUMONIA.

BY

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Probably ever since time began, pneumonia has claimed a dreadful toll of lives. Even tho, during these many centuries, much progress has been made in the treatment of this very fatal disease, pneumonia still remains the "Captain of the Men of Death." Therefore it behooves us to keep ourselves thoroly familiar with every advance in therapy, as well as the older symptomatic treatment. Since the publication of a previous paper(1), there has not been any great addition to our therapeutic knowledge. However, with the approach of winter, it is advisable to review the best of the present-day methods of treatment. It seems best to discuss the subject as follows:

1. **Prophylactic.**—Good food, plenty of sleep, an abundance of fresh air, proper clothing, a cool sponge bath every morning—in short, all measures which keep individual resistance at a high level—are of value. The administration of a vaccine composed of pneumococci of types I, II, III, and of hemolytic streptococci seems to be well worth while. Kolmer and Steinfield(2) recommend a prophylactic mouth-wash of ethylhydrocuprein (1 to 10,000) solution in liquor thymolis and the same drug or quinine itself in Dobell's solution

as a nasal douche. The administration of antistreptococcus serum to all cases of measles will prevent many of the dreadful pneumonic sequelae of this very common disease. When absolute isolation of each pneumonia patient is impossible, the placing of screens, at least eight feet in height, around each patient will aid materially in stopping the spreading of this disease.

2. **Hygienic.**—The patient should be isolated in a light, airy room which is devoid of all unnecessary furniture and which has the temperature of the outside air. The patient should have just enough bed-covering to keep him comfortable, and he should have no draught blowing on him. Absolute mental and physical rest, as well as expert nursing, are imperative. The diet should consist of easily-digested, easily-assimilated, non-fermentative foods of high caloric value, given in small amounts every two or three hours. The patient should drink freely of water, and he or she should have an abundance of fresh air.

3. **Symptomatic.**—An initial *chill* may be lessened by the administration of hot drinks and the application of hot water bottles. Three or four grains of calomel should be given soon after the patient is first seen. The fever usually requires no treatment; but if the temperature is above 104° F., a cool sponge bath is in order. In case the patient has any serious cardiac disturbance, he will react better to a warm sponge bath. A frequent painful *cough* calls for the administration of either heroin or codeine. In bronchopneumonia, the use of *expectorants* is of much value; this statement holds true sometimes also in the third stage of lobar pneumonia. Probably the best drug for this purpose is ammonium chloride, which is best given with licorice or the syrup of citric acid. Strapping the

affected side with adhesive plaster and the administration of codeine or morphine will control the pain of an accompanying *pleurisy*. The application of mustard plasters or kaolin to the skin of the chest is apparently of no value; in fact, "the notion that the course of an acute infective inflammation in the alveoli can be modified by doing something to the skin of the chest is pathologically untrue and physiologically impossible" (3). The toxemia can be partly overcome by plenty of fresh air and water; at least three pints of water should be taken daily by the patient, either by the mouth, by the rectal drip, by hypodermoclysis, or by intravenous administration.

Abdominal distention is best relieved by the hypodermic administration of pituitrin or eserine sulphate and by the use of turpentine stupes and asafetida enemata. Of course, the omission from the diet of any food that is causing distention is necessary. The mild types of *delirium* call for the application of the ice-cap to the head and for the administration of a bromide in 20 grain doses every three hours. The more severe types of delirium require the use of morphine. The *cyanosis* of some cases can be overcome by the inhalation of oxygen for five or ten minutes each half hour; at the same time, the heart should receive attention.

The *heart muscle* early becomes affected by the pneumonia poisons, with the result that cardiac medication is practically always necessary. Digitalis is the drug usually indicated; and the tincture seems to be about as good as any other preparation. It is necessary to use an active solution; and if no effect is obtained, the dose is either too small or else the preparation is inactive. A dose of 20 or 30 drops every four hours will soon get the pulse rate

under control. However, one should not hesitate to give larger doses, if such doses are necessary. Digitalis should be stopped when the pulse rate gets down to 80, or with the onset of sudden anorexia, vomiting, diarrhea, a decrease in urinary output, or extra-systoles. Caffeine and sodium benzoate is an excellent stimulant; also the compound spirit of ether and the aromatic spirit of ammonia are rapidly diffusible stimulants. Camphor in oil is slower, but quite powerful. In collapse, atropine is very valuable. Strophanthin, or ouabain, given intravenously, is probably the most powerful stimulant of cardiac muscle; but it is dangerous to give this drug soon after digitalis therapy. When the heart is laboring against increased peripheral resistance occasioned by the contraction of the arterioles, or when the blood pressure in an arteriosclerotic patient is ascending to unsafe heights, nitroglycerine should be given. The blood pressure should be taken regularly and frequently. Hypotension calls for the administration of adrenalin and pituitrin, in addition to digitalis.

Empyema, altho it is not a symptom, occurs frequently enough to warrant its consideration here. It seems best to aspirate the pus daily, and at the conclusion of each aspiration, to inject into the pus cavity one or two ounces of a surgical solution of chlorinated soda (4); and to do a late instead of early operation, when operation is necessary.

4. **Immunotherapeutic.**—(a) *Lobar pneumonia*.—Cole and Dochez (5) have found that pneumococci are of four distinct types (I, II, III, IV) and that, so far as specific therapy is concerned, pneumonia is caused by four different organisms; the Types I and II are the most prevalent, and that each of these types yields a

protective antipneumococcus serum, that of Type I being much more potent. These two scientists found it impossible to treat pneumonia caused by either Type III or IV, because in one type the organisms are of distinct varieties and the other type does not yield an immune serum. But there is much consolation in the fact that infection by either Type III or IV is relatively slight and rarely fatal. In all cases studied by Cole and Dochez, "the serum had an ultimate favorable effect in lowering the temperature and shortening the course of the disease." In all cases, one injection was sufficient to render the blood sterile.

The particular type of causative organism is determined by the agglutination test or Blake's precipitin test(6) on a culture obtained either from the blood, sputum coughed from the lung, or directly from the lung by means of a needle inserted into it. If the causative organism belongs to either Type I or II, the treatment, with the appropriate serum in doses of 50 to 100 c. c. diluted one-half with normal saline solution, injected into a suitable vein, is begun immediately. The condition of the patient is used as a guide to further treatment, the total amount of serum used is from 190 to 700 c. c. and the dose should not ordinarily be repeated within 12 hours of the preceding one.

(b) *Bronchopneumonia*.—As soon as the causative organism can be determined by culture of the blood, sputum, or by lung puncture, immunotherapeutic treatment may be advisable. If the streptococcus is the cause, the intravenous administration of antistreptococci serum is in order. If the pneumococcus is the cause, serum of that kind should be given. In influenza pneumonia, the use of serum obtained from convalescent influenza-pneumonia patients

has been tried, but did not yield much success. In the treatment of bronchopneumonia, the use of sera has been of far less value than in lobar pneumonia.

"The status of vaccination in pneumonia, both prophylactic and curative, is still very doubtful—and the evidence of clinicians in favor of vaccination as a therapeutic measure is insufficient to overthrow the general scientific arguments against the procedure."

Hiss(7) reports very good results in the treatment of pneumonia with an extract of leucocytes obtained from rabbits, in doses of 20 to 60 c. c. q 4 h.

5. **Chemotherapy**.—At the present time, quinine and its derivatives are the nearest approaches to a specific chemical remedy, in *pneumococcus pneumoniae*. In 1901, Petzold (8) used quinine hydrochlorate hypodermically and considered it a specific. Later, Henry(9) enthusiastically reported using quinine hydrochlorosulphate on account of its greater solubility, hypodermically.

In 1912, Cohen(10) reported his use of a 50 per cent. solution in water of quinine and urea, given into the muscles, in doses totaling 90 to 150 grains within 48 to 60 hours, without cinchonism. As a result of this form of treatment, the symptoms are favorably changed, but the physical signs are uninfluenced. In a later paper(11), this same author asserts his belief that quinine and its congeners are antitoxics or antidotes to the pneumococcic toxins; that often one dose is sufficient to insure recovery. In other cases, however, he says that the quinine and urea must be supplemented by heart stimulants. When the temperature is over 103°F., he gives, either orally or intramuscularly, 7½ to 15 grains every 3 hours until the temperature is reduced to 102.2°F. Commenting on this

quinine and urea treatment, Billings(12) says the effect is solely from the quinine, which, if given in sufficiently large doses, will lower febrile temperature, but advises against combating high temperature in pneumonia with antipyretics.

At present ethylhydrocuprein, a synthetic quinine-like substance, seems to be the best chemical agent in treating lobar pneumonia. Ethylhydrocuprein was probably first used by Morgenroth and Levy(13) while they were working with various derivatives of quinine. Cole(14) says that this substance is 150 times as strong as quinine, and that it has the power, even in the dilution of 1 to 5,000,000, of killing pneumococci in the test tube, and that it seems to be effective against all types of pneumococci.

Both Wright(15) and Frankel(16) noted several cases of transitory amblyopia following its use, and the former was unable to observe any therapeutic effects whatever. Also Stuhmer(17) has reported a case of transitory total amaurosis following a total of 2.25 grams administered within 48 hours. These ill effects are probably due to the facts that the therapeutic dose is very near the toxic dose, and that these patients received too large a dose.

In a series of 20 cases, Becher(18) obtained most excellent results. He found that, when the drug was begun on the first day of the disease, the average time until the disappearance of fever was $2\frac{1}{2}$ days; when begun on the second day, it was a little over $3\frac{1}{2}$ days—the time growing longer the later in the disease the administration of the drug was started. In addition to the prompt reduction of fever, Becher notes that the drug lessened the number and frequency of complications and averted serious cardiac manifestations.

The untoward symptoms affect the eyes and ears particularly, and sometimes manifest themselves in nausea and vomiting.

Baerman(19) who gave the drug in an oily suspension, thinks that this agent has an unmistakable curative action in pneumonia, especially when combined with immune serum.

Chesney(20) declares that a bactericidal action for pneumococci can be secured in the blood stream of patients if the patients are given 0.024 gram of ethylhydrocuprein per kilogram of body weight, per 24 hours. If at first a large dose is given and followed at intervals of not more than three hours, by smaller doses, the appearance of this bactericidal action may be hastened.

Both Chesney and Cole recommend an initial dose of 7 or 8 grains, followed every two hours by $2\frac{1}{2}$ grain doses. Becher gives 4 grains every four hours. The oral administration of the hydrochloride has given the best results.

"Of things, some are in our power, and some are not" beginneth the Enchiridion of Epictetus. Surely this is true in the treatment of pneumonia. When we have done so much, we have about exhausted all our therapeutic resources. Then, all we can do is to watch and wait, and hope that the fateful summons to cross the dreary river of death will not come to her or him o'er whom we watch.

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MULTIPLE ARTHRITIS OF OBSCURE ORIGIN.¹

BY

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The subject of this report is a man thirty-eight years of age, the father of three living children. For the past fifteen years he has had on his mind the responsibility of a large business enterprise to which he has devoted close attention and in consequence has taken little or no recreation.

In March, 1919, the patient had what was supposed to be a mild attack of influenza. He was not under my observation at that time, but the probability is he was not in a highly resistant state. His attack of influenza was presumed to have been mild in character, but examination by an eye, ear, nose and throat specialist revealed that some of the accessory sinuses were involved according to the patient's statement. However, early in May he consulted another eye, ear, nose and throat specialist who was certain his sinuses were clear.

During the latter part of May, he began

to suffer pain and swelling about the metatarso-phalangeal joints of both feet. The process extended rather rapidly and successively involved the ankles, the lower legs, the joints of the hands (particularly the right) and wrists; he also had pain in the elbow and shoulder joints but no swelling. He was at different times under the care of two prominent physicians in Louisville with no improvement.

His condition became sufficiently serious in July as to cause him to quit work, at which time he came under my observation. He had then been away from his business about a week. His temperature and pulse were about normal; blood pressure 130 mm. Hg. Blood examination showed leucocytes eight thousand, hemoglobin eighty per cent., erythrocytes four million plus.

At my first visit the additional history was obtained that the patient had suffered from some gastrointestinal disturbance in 1916; that he had been operated upon by a Louisville surgeon for gastropexis the stomach having been "hitched up in correct position"; that at the same time his appendix which was perfectly normal had been removed, and strange to relate he survived the surgical insult!

I examined this man carefully, and noted that several of his teeth were sensitive to touch with a probe. Attention had not hitherto been attracted to his teeth; he had not suffered from toothache altho pyorrhea alveolaris was marked around several lower and one or two upper teeth. Some of his teeth had been filled and others needed dental attention. On this basis I suggested that the arthritis was in all probability due to focal infection, and that it was my belief his teeth were responsible as no other possible source of infection could be found. I therefore advised that he have the mouth and jaws examined by an expert roentgenologist. He was accordingly taken to the office of a dentist who makes a specialty of exodontia and roentgenologic work. The Roentgen ray showed abscesses at the roots of the fifth, sixth and seventh molars on the right side, and two teeth under these three were similarly involved. The right upper incisor tooth showed what the dentist called a "granuloma" at the root. Extraction of the diseased teeth was recommended and done a few days later at the Norton Infirmary with thoro curettage of the ab-

¹ Case report before the Society of Physicians and Surgeons, of Louisville, Kentucky, November 20, 1919.

scess cavities. Recovery was uneventful from the extraction and curettetment, the wound being kept open for five weeks before it was allowed to heal.

Since that time the sinuses have again been examined with negative result; his blood has been again cultured with an absolutely negative result; the Widal reaction is negative; Wassermann negative; examination of the genitourinary tract negative and the man has a negative venereal history.

Five weeks ago, for the first time, one of the joints began to fill with fluid, *i. e.*, the left knee. It filled rather rapidly, and three days later several cubic centimeters of fluid withdrawn by aspiration was submitted to the laboratory for examination hoping the responsible microorganism might be located. Again to our surprise the culture was negative.

Since July this man has spent two weeks at Martinsville, Indiana; he has grown progressively worse and is at present again at the Springs on his own volition. Dr. C. W. Dowden saw him with me in consultation two weeks ago, and he suggested possibly there was an underlying gouty condition. We accordingly made another examination of the blood for urea and uric acid, with negative results.

I do not know the cause of the multiple arthritis in this case. The man's tonsils are apparently normal; there seems no reason for suspecting the tonsils as the focus of infection as they are not enlarged nor are there any adhesions at the pillars. Certain joints which are painful and swollen today may two days later be free from pain with absolutely no impairment of function. In fact, functional impairment occurs only during an acute attack of pain. As soon as pain subsides joint function is completely restored. The joints have been repeatedly examined by the Roentgen ray and the bones found normal. The man's temperature throughout has remained about 99° F.

Of course it is well recognized that multiple arthritis may have its origin in focal infection. It is also true that the primary cause of the trouble may be completely removed and yet pathology in one or many joints may persist. However, it would seem that in a case such as this, where the joint pathology has persisted since removal of the primary cause which was presum-

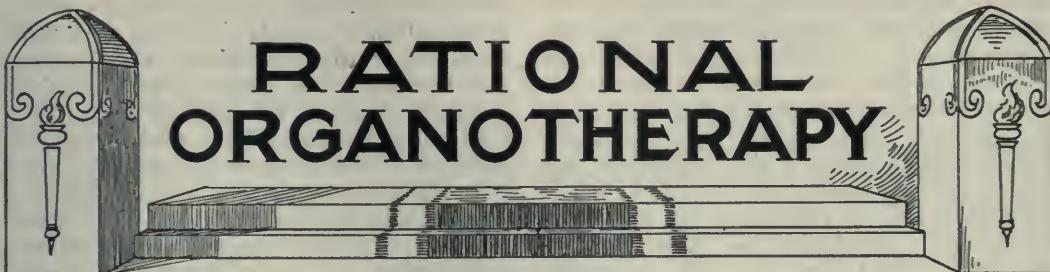
ably located in the teeth, there should be impairment of function in the involved joints. I cannot conceive of any disease which might act as a secondary focus without impairment of function.

So far as metabolic disturbances are concerned I can conceive of but one condition which might result in multiple arthritis and that is gout. Any disease due to faulty metabolism which manifests itself primarily in the joints of the feet, with subsequent involvement of other joints and persisting for six months, must eventually show some evidence on blood examination, such as increase in the amount of urea and uric acid, and there will also be angulation from uric acid deposits which can be clinically demonstrated.

This patient has no uric acid deposits, and blood examination shows the excretion of urea to be practically normal in percentage. Roentgen-ray examination shows that the joints are perfectly normal.

The Work of American Physicians in Local Examining Boards.—

"In the work done by the medical profession in the war, one cannot pass by that accomplished in examining the young men drafted into the army. This work of the local boards was not done by picked specialists or by men previously trained for it. The physicians of the boards were at first usually the county and city physicians appointed by the local sheriff, and the figures form an interesting study. Of the 10,000,000 (9,952,735) called and registered, 6,750,000 (6,744,289) were not examined. Of the one-third who were examined—that is, of the 3,208,448—70.4 per cent. were found to be fully qualified, while 29.6 per cent. were found physically to be totally or partially disqualified. Of the 2,124,293 who were sent by the local boards to the camps and were there subjected to the careful and minute examination of experts, 91.9 per cent. were accepted and only 8.1 per cent. rejected. It is interesting to note that in the draft of 1917 the local boards rejected 29.1 per cent. and in 1918 they rejected 29.6 per cent. The more this work is studied, the more one appreciates its extent, its far-reaching influence and the high value of the work performed."—Col. Alexander Lambert.



The Adrenalin Test.—Goetsch (*Med. Record*, page 780, Nov. 8, 1919) reports the results of a clinical study of approximately 300 cases of thyroid disease in the human subject with special reference to the sensitiveness of these patients to hypodermic administration of adrenalin; to show that in clinical states of hyperthyroidism there was an increased tolerance for adrenalin hyperdermically administered; and to indicate the practical application of this knowledge to the study, diagnosis and treatment of thyroid disease in the human subject. With the abundant physiologic evidence that increased thyroid secretion caused a hypersensitiveness of the sympathetic nervous system to the action of adrenalin, he thought it would be of interest to test the reaction of human patients suffering with hyperthyroidism to the subcutaneous administration of adrenalin. His thought was that if thyroid secretion sensitized the sympathetic endings to the action of adrenalin it was reasonable to suppose that a sudden increase of adrenalin in the circulating blood would call forth active responses throughout the domain of distribution of the sympathetic nervous system. This result he had found to be remarkably constant. The work was begun five years ago while he was in the surgical clinic of Professor Cushing and continued during the past four years in the clinic of Professor Halsted at Johns Hopkins Hospital. To his great surprise and satisfaction the first patient exhibiting hyperthyroidism, a case of exophthalmic goiter, gave a sharp reaction to the injection of adrenalin, and since that time he had personally carried out or supervised the carrying out of the test in 300 cases of thyroid disease and in approximately 100 conditions simulating in many respects hyperthyroidism. In a so-called positive reaction there

was usually an early rise in systolic and a fall in diastolic blood pressures. In a very mild reaction the fall in diastolic pressure might occur alone. There was a rise in pulse pressure of at least 10 and sometimes as much as 50 or more millimeters of mercury. In the course of 30 to 35 minutes there was a moderate fall of the pulse and blood pressure, then a characteristic secondary rise and a second fall to the normal in about one and a half hours. Together with these changes one saw an exaggeration of the clinical picture of Graves' disease or hyperthyroidism brought out, especially the nervous manifestations.

The Differential Diagnosis of Hyperthyroidism by Basal Metabolism and Alimentary Hyperglycemia.—There seems to be quite general agreement, asserts McCaskey (*N. Y. Med. Jour.*, Oct. 11, 1919), as to the causal relationship of overactivity of the thyroid gland to increased metabolism. In fact, it seems to have been proved that there is a close quantitative parallelism between the thyroid secretion and the metabolic rate, and that the estimation of the latter by means of the oxygen consumption may, therefore, be relied upon, with certain reservations, as an accurate index of the activity of the thyroid gland. The isolation and identification of thyrotoxin and its complete chemical study by Kendall, together with its physiologic and therapeutic study by Plummer, have placed this entire subject upon an accurate, almost mathematical basis. These discoveries, in the opinion of the writer, have relegated to the domain of obsolete pathologic conceptions the always dubious hypothesis of dysthyroidism, at least in so far as it refers to perversion, rather than a quantitative variation of thyroid secretion. From the

strictly clinical aspects of the question one may confidently proceed on the following assumptions: (1) That the symptoms of hyperthyroidism and hypothyroidism are due to quantitative variations of thyrotoxin in the body cells. (2) That the fundamental phenomenon which dominates the entire clinical picture from cretinism to "Basedowism" is perversion of the metabolic rate. (3) That this metabolic rate has its absolute equivalent, in accordance with fully established physical laws, in the heat production of the entire mass of body cells. (4) That this heat production is essentially a process of oxidation and is equivalent to the quantity of oxygen consumed, the latter being regulated by, and dependent upon, the metabolic rate. (5) That it is now possible with the *comparatively simple* Benedict portable respiration apparatus to determine clinically the oxygen consumption over a sufficient period of time, say ten to fifteen minutes, with sufficient accuracy for all clinical purposes. (6) That if food metabolism is eliminated by twelve to fifteen hours' starvation (the usual normal condition in the morning), and the metabolism of voluntary muscular effort is eliminated by absolute rest in the recumbent position (one-half to one hour is sufficient), there remains only the energy output—the heat production—the metabolism of the circulatory and respiratory mechanism, with small and probably negligible additions for the phenomena of secretion and the intracellular chemical changes of the cells of the body while at rest, which is called basal metabolism. This so-called basal metabolism is very constant, not only in the same individual, but in all individuals when calculated in *proportion to the area of body surface*, varying in health, in a large majority of people, probably less than 10 per cent. from the average normal rate. The clinical estimation of basal metabolism is thus a very practical and reliable guide (and comparatively easy, altho requiring the utmost care and accuracy) to the functional activity of the thyroid gland in health and disease, and without which thyroid disease cannot be adequately and scientifically studied. Before making a final decision as to the functional state of the thyroid, there are certain important limitations and reservations which must receive careful attention. The

first and perhaps most important question is: What other causal conditions, aside from variation in thyroid activity, may produce the fluctuations of basal metabolism which form the basis of this clinical study? For while quantitative variations of the thyroid hormone produce these changes to an extent and with a promptness and certainty that nothing else can equal, it does not follow that other and independent factors exist with which one must reckon. In reality such factors do exist. Among these may be mentioned fever, severe cardiorenal disease, pernicious anemia, and age, all of which the writer discusses more or less in detail. With due attention to the precautions and exceptions suggested, the rate of basal metabolism must be regarded as an altogether dependable index of thyroid activity at the time of observation. With regard to alimentary hyperglycemia in its relation to hyperthyroidism the writer states: (1) That alimentary hyperglycemia following 100 grams of glucose is present in probably every case of thyrotoxicosis. (2) That it is rarely, if ever, present at the end of the first hour in normal persons, altho it may have occurred at the end of about thirty minutes. (3) Its presence, therefore, in one hour and especially in two hours always indicates abnormal carbohydrate metabolism unless gastrointestinal function is delayed. (4) It occurs in latent, and of course in manifest, diabetes, in alcoholism, malignant disease, arthritis, and very probably in a considerable number of infections, acute, subacute or chronic in the same category with arthritis. (5) Before attaching a positive diagnostic value to alimentary hyperglycemia in suspected hyperthyroidism, these conditions and possibly others of which we are now learning must be excluded. (6) While its positive value can only be considered corroborative, its negative value in excluding hyperthyroidism is very great and probably exceeds 90 per cent. (7) In hyperthyroidism there is no constant direct ratio between its intensity and the height of the alimentary hyperglycemia, altho in general the blood sugar values in severe cases are high. (8) Too much importance should not be attached to alimentary blood sugar values below 140 mgm. of sugar in 100 c. c. blood, altho sharp lines of demarcation cannot yet be drawn.

The Hyperthyroid Theory of Basedow's Disease.—Cumston (*N. Y. Med. Jour.*, Aug. 30, 1919) emphasizes the fact that the thyroid gland receives its impulses from the nervous system by way of the laryngeal nerves, and by its activity produces a substance which in turn reinforces the activity of the nervous system by increasing its susceptibility. A normal nervous system would perfectly well support a reinforcement of its excitability and would not react by any apparent symptomatology. There would be a disproportion between cause and effect, this being made evident at points particularly sensitive to thyroglobulin, that is to say in the domain of the sympathetic and cerebrospinal system.

The clinical symptoms can be readily surmised. They consist of cardiovascular symptoms (tachycardia, palpitation, vascular erethism, sensation of heat), polyuria, polydipsia, bulimia, emaciation, profuse sweating, nervous disturbances (nervousness, insomnia, tremor, headache). However, while in constitutional iodic subjects a predisposed nervous system is attacked by thyroid intoxication (provoked by iodine), in patients with exophthalmic goiter it is on the contrary the seriously changed nervous system which acts on the thyroid gland by the intermediary of the laryngeal nerves, causing hyperfunctioning which reacts on the nervous system. Thus a vicious circle becomes established. Surgical treatment breaks this vicious circle, but does not cure the diseased nervous system. A morbid change of the nervous system and an increase of the thyroid secretion are the two conditions *sine qua non* of the morbid symptomatology. In the first, iodic thyroidism, the nervous changes preexist; iodism gives rise to thyroid intoxication; both conditions being manifested.

In true exophthalmic goiter, the nervous system, more profoundly changed, is the only *primam movens* which starts up thyroid hyperactivity and creates the vicious circle in which the nervous system excites the thyroid secretion, rendering the nervous system more excitable, and so on.

Finally, in the third, Basedow's disease, thyroid hypersecretion preexists, and it is this which creates the nervous lesion by a long continued irritation. One of the best arguments in favor of the theory of thyroid hypersecretion is the success obtained by

various serotherapeutic measures based upon this hypersecretion.

Corpus Luteum Extract in the Vomiting of Pregnancy.—J. K. Quigley (*Amer. Jour. of Obstetrics*, Aug., 1919) gives histories of several cases in which this treatment was applied. The total number of patients treated by him was seventeen; twelve were permanently benefited by the treatment, and four others were benefited but relapsed, not enough of the drug having been given. In one case, of the pernicious type, there was complete failure. The corpus luteum extract was often injected intramuscularly, *e. g.*, in the deltoid muscle, in doses of one mil, repeated every four days, daily, or even oftener. In some cases five grains of extract were given by mouth three times a day. The average number of injections given was seven. In the four relapsing cases only three to five doses had been given. Had these patients been given more of the drug at the onset as a routine, permanent benefit would probably have resulted. The one mil ampoules of extract employed in administering the intramuscular injections each contained 0.2 gram of desiccated corpus luteum substance.



Physical Therapy

The Treatment of Rheumatoid Arthritis.—An editorial writer in the *Amer. Jour. of Electrotherapeutics and Radiology* (Sept., 1919) concludes his very comprehensive article as follows:

(1) Patients suffering from rheumatoid arthritis received marked benefit and have been clinically cured by the action of the static current in relieving local inflammation and tissue infiltration, restoring circulation and metabolism, both local and general.

(2) In no case in the light of the present knowledge of the causes of the condition should diet and high colonic flushings as a routine method be omitted.

(3) In no instance should these patients be restrained from exercise; but on the contrary, exercise should be encouraged during the treatment, short of commencing fatigue.

(4) The treatments by radiant light and heat, either local or with the light bath, two or three times weekly add very much to the relief of these cases, promoting as they do increased metabolism and elimination.

(5) Mechanical vibration plays a very important rôle in the treatment of this disease, for the relief of muscular tension, overcoming the stiffened joints and improving to a degree local metabolism and elimination.

Under the condition indicated only the most advanced cases resist an improvement of the condition, and in all other cases under the indicated régime and routine treatment these cases are uniformly cured. Failure only results from a careless technic or indifferent attention of careless patients to treatment and diet, or the destruction of joint structures which had taken place prior to the institution of treatment. All structures or parts of joints that have undergone organic change will remain permanently impaired with the inflammatory process abated.

erly, that is in correct dosage and with exact knowledge as to its application, is a most valuable remedy.

W. H. B. Aikins of Toronto read a paper on radium at the meeting of the American Radium Society, Atlantic City, June 9, 1919, which is published in the *Medical Press* for October 8, 1919. In this paper it is explained how necessary it is to recognize the limitations of radium and not to expect too much from its employment. Aikins reviews the history of radium in the treatment of cancer and states it holds a firm, almost unassailable position as regards the treatment of cancer of the face. It may be relied upon in a large proportion of these cases to bring about a permanent cure without leaving the disfiguring and contracted scars which so often result from surgery, and which so frequently are the site of recurrence of the trouble. In such cases there is no other treatment which can compare with radium in the excellence of its cosmetic results. Further, Aikins says, radium may be recommended in this connection because of the ease and painlessness with which it can be applied. Not only in malignant, but also in benign diseases of the skin radium has proved its value.

Surgeons for the most part regard radium as chiefly useful as an adjunct rather than a substitute for the knife. As to this, while Aikins does not admit that its main value rests in its post-operative efficacy, he does regard it as peculiarly useful in this field. He quotes from the Report of the London Radium Institute, issued at the end of 1918, in which it is stated that between 1911 and 1914 a large number of cases of cancer were operated upon by surgeons of high standing, and the operations were so extensive that in the opinion of the operators recurrence was inevitable. After post-operative treatment with radium, recurrence took place in less than 20 per cent. of the cases, a result which is believed to be unequalled even in the records of selected cases operated upon by surgeons of extensive experience. One of the most beneficial effects of radium is the manner in which it will often, perhaps generally, relieve the distressing features of incurable cases and thus modify the unpleasant symptoms characteristic of the final stages of the disease, and render the last days of the patient at

Radium Treatment of Cancer.—The effects of and efficacy of radium have been very widely discussed of recent years, says an editorial writer in the *Medical Record* (Nov. 8, 1919). As a therapeutic agent it has been extolled to the skies and condemned without reservation. Soon after its first introduction it suffered severely from the exaggerated and indiscrete praise of its too enthusiastic advocates. In the reaction which followed it was freely stigmatized as absolutely useless and even harmful. The medical profession is now coming to a fair estimate of its worth, avoiding excessive praise on the one hand and equally foolish condemnation on the other. The conclusion has been arrived at that radium is neither a "cure all" nor a useless or harmful means of combating certain diseases, but when employed prop-

least durable. This precious action of radium has been notably demonstrated in advanced cases of cancer of the uterus. Aikins does not in any way overstate the case when he says that the present position of radium therapy is very encouraging and that radium has amply justified its use by its palliative properties in these hopeless cases.

Radio-Therapy in Inflammation.—According to the *American Journal of Electrotherapeutics and Radiology*, in the very early stage of inflammation the application of radiant light and heat or thermal penetration with the high frequency current, or the administration of dry heat by dilating the superficial vessels and capillaries, enlarging the channels of circulation thru the capillaries and small blood vessels, may make possible the escape of the inflowing blood and arrest or prevent the establishment of stasis. When the induction of such hyperemia, however, has been delayed and the stasis is already well established, more active measures will be required—energetic means which will act as a *cis a tergo*, and force out the accumulations in the lymph spaces thru the lymph channels, and so disengorge the tissues.

In a paper read at Buffalo in 1901 (The Effects of Electrostatic Modalities upon Hyperemia and Pain), at the annual meeting of the American Electrotherapeutic Association, Adami first called attention to this principle, which has since been recognized and employed by a large number of medical men with the same success that has always attended their use by the writer. In this paper it was stated that the previous dictum of the medical profession, that electricity should not be employed in the treatment of acute inflammatory conditions in the earliest stages, was an error because its proper employment effects an early dissipation of the inflammatory exudate, softens the involved tissues and brings about promptly a restitution to normal of the circulation and metabolism in a manner that cannot be accomplished so effectively by other measures.

In the case of a sprained ankle or knee, referred to by Adami, the systematic, proper application of the static current at the first administration will soften the exuda-

tion, relieving the pressure, with relief from pain, relaxation of muscular tension and restoration of motility and utility to the joint. The patient who comes for treatment on crutches will walk out without them with little or no pain, and unrestrained in his directions as to rest. An individual in such condition should return for daily treatments, with the result of a complete restoration of the affected part within a week, without an evidence of having had an inflammatory trouble. This will be the result in all cases in which there has been no solution of continuity or fracture of the ligamentous or bony structures of the joint, when they come under observation within 24 or 36 hours after such accident has occurred. The same principle applies to the treatment of every similar inflammatory condition not the seat of an infectious process.

The best means to be employed for the relief of local inflammation in which infection does not enter as a factor is the application of the static wave current, the static sparks, the static brush discharge or the direct vacuum tube static current, singly or conjointly. Any one of these modalities is capable of removing superficial inflammation. If, however, the deep structures of an enlarged joint are involved, or other deep-seated structures, the best means for relieving it is by inducing tissue contraction of such deeply located tissues with the application of long static sparks. The static brush discharge is applicable for the relief of all superficial inflammations including sprains of the hands and fingers, and other small joints, and to all inflammatory conditions involving the skin, face and scalp. The static wave current is adequate for relieving all moderately deep inflammatory conditions. The size of the metal electrode for internal or external use and the length of spark gap should be regulated to bring about the requisite degree and depth of tissue contraction, while, as stated above, the static spark is indicated in deep-seated inflammation. The direct vacuum current administered with a vacuum tube connected, and operated as the static wave current is with the static machine, is capable of producing similar effects of diffuse tissue contraction, but is generally confined to the treatment of the cavities of the body and superficial inflammation.



Treatment of Influenza.—General management: Wetmore (*The Canadian Med. Assn. Jour.* Dec. 1919) rightly states that the things that count in the general management of a case are *absolute rest in bed* from the first, fresh air, and good nursing. The bad cases are those that persist in being around, or who are compelled to look after other members of the family, after they are themselves affected. Prophylactic and therapeutic inoculation may be unable to save such a one from the dangerous pneumonia.

Fresh air: Let the windows be kept open from the first. And if there is any suspicion of lung complications, order the patient's bed brought as near to the open window as possible, and see that the order is carried out before you leave the house. When possible, put the bed in a corner of the room between two windows, kept wide open from top to bottom day and night. Of course see that the patient is provided with plenty of bed-clothing, with artificial heat inside the bed. As in ordinary pneumonia and tuberculosis, so here, absolutely fresh air is life-saving.

Good nursing: Put a nurse in charge of a case early so as to conserve the resisting power of the patient, and besides, prevent other members of the family from becoming overfatigued. Without a nurse, one never knows whether or not their orders of vital importance such as clearing out of the *prima viae*, and the keeping up of proper nourishment will be promptly and efficiently attended to. All honor to the nurse, who thruout the recent dangerous pandemic was not afraid to work day and night, hand in hand with the physician, in their life-saving mission, to prevent the patient from drifting on and on, into hopeless, helpless, septicemic cyanosis!

When called to a case, isolate the patient, arrange masks and hand washing for the attendants, and see that the sputum is properly taken care of. This last can be done by having bits of rags or paper, and a paper bag as a receptacle pinned to the bedside and later burned. See that a bed-pan is available.

Diet: Give liquids entirely at first. A mixture of milk and lime-water is good, one part lime-water, two parts milk, of which the patient may take from six to eight ounces every two hours; or milk and raw eggs may be taken, an egg to a pint of milk, half the quantity every two hours. If the case is serious, see that the patient has nourishment at night as well as during the day.

Medical treatment: Clear out the digestive tract early with a saline cathartic, such as

Epsom salts, preceded by fractional doses of calomel in case of vomiting, and repeat the saline each day unless contraindicated. Acidosis being usually present, alkaline treatment, I think, does as much good as any other, without doing harm. Some give both bicarbonate of soda, c.p., and citrate of potash, giving from seven to ten grains of each drug separately and alternately each hour. A third form of alkali is the lime-water and milk. The treatment generally agrees well with the digestive system and the bicarbonate of soda has a tendency to gradually lessen the pains. When alkalies are administered, a somewhat smaller dose of the therapeutic vaccine is required. In view of the oncoming toxemia and tendency to vasomotor paresis, we must avoid the coal-tar products as much as possible. Aceto-salicylic acid is usually given for the pains. *For the cough*, moderate doses of heroin (1-12 gr.) are given. *Insomnia* also may be treated by heroin, or a stronger opiate.

Circulatory failure: Some autopsies having shown disorganization of the adrenals, one would be inclined to recommend adrenalin chloride solution for cases showing vasomotor paresis, and lowered blood pressure; and in two or three cases where used, I found it helpful in tiding over a weak spell. To combat the circulatory failure accompanying pneumonia, tincture of digitalis in five to fifteen drop doses every four, six or eight hours has been used a good deal, with or without alcoholic stimulants in half ounce doses. As in other diseases, so here, a dangerous toxemic condition would appear to be an indication for free alcoholic stimulation.

Treatment of Muscular Atrophy by Artificial Stimulation.—Cooper, in the *London Lancet* (Dec. 13, 1919) points out that treatment may be regarded as preventive or restorative, according to the stage of the injury. The preventive treatment of atrophy of the tissues of an injured limb is necessarily a difficult problem, and must be largely circumscribed by the nature of the injury; but even when the exigencies of surgical treatment have been fully considered, it is deplorable to find so many patients sent at a late stage to the department of physiotherapy, the wholesale atrophy of whose tissues bears eloquent testimony to the fact that the suspension of the functional activity of every tissue of the limb was considered a *sine qua non* of surgical treatment. Fortunately, there were many surgeons who treated the injured limb as well as the injury itself, and even under the most difficult circumstances managed to secure sufficient functional activity to prevent the atrophy that attends absolute disuse.

There is no doubt that too much attention has been given to restorative treatment as compared with preventive treatment, and the surgeon who has conquered sepsis and secured a perfect alignment has but little reason to be proud of the result if the joints of the limb are immovable, and the muscles hopelessly atrophied. For the atrophy of such muscles

is frequently hopeless, and in many cases has proceeded so far that a large proportion of the muscle cells have perished and have been replaced by fibrous tissues. No amount of subsequent stimulation can restore such a muscle and "permanent disability" too often marks the measure of the surgeon's skill.

For the treatment of muscles by artificial stimulation two methods are available: stimulation by massage and stimulation by electricity.

Massage. Bearing in mind that our object is to produce contraction in muscle fibres with a view to determining exchange between the fibre and the surrounding lymph it does not appear that in massage we have an agency of any considerable value in restoring the size and tone of a wasted muscle whose response is limited to direct stimulation, as is the case in muscles suffering from reaction of degeneration. Where the nerve-supply is intact contractions in response to manipulations are largely the result of stimulation of the muscle fibre thru the muscle plate, but where the nerve-supply is interrupted contractile response to manipulation must correspond to the irritability of the muscle fibres to direct stimulation, and in most cases this response to direct stimulation is very feeble. I am inclined to regard massage as effective to a large extent in such cases on account of its action on the vasomotor system, and this result will be largely brought about by mechanical action, as the vasomotor reflexes are also affected in peripheral nerve lesion.

Contraction Produced by Means of Electrical Stimulation. In electricity we have an agency which is peculiarly effective in producing contractions of muscle fibres, and, as is well known, by utilizing this form of energy we can obtain the most complete contractions of individual muscles or muscle groups.

For the production of contraction in muscles, we can use either the faradic or the interrupted galvanic current. The stimulation caused by the electrical current is due to the displacement of the ions in the nerve or muscle and the more sudden the displacement the more stimulating is the effect. A constant current is therefore incapable of producing contractions in muscles, and it is only at the make and break of the current that stimulation takes place. It has been suggested that muscles probably contain two kinds of contractile material, the striated portion and the sarcoplasm. The striated portion responds to brief stimuli and contracts rapidly, the sarcoplasm responds to longer stimuli only, and contracts slowly. A sluggish contraction would represent a contraction of the sarcoplasm. Muscles suffering from reaction of degeneration, as is well known, will not react to the currents of brief duration set up in the ordinary induction coil of faradic battery. They will, however, react to the interrupted galvanic current, and muscles suffering from reaction of degeneration would therefore appear to have sustained a loss of striated elements with survival of the sarcoplasm alone.

This appears to have been borne out by the fact that when reaction of degeneration is fully established, the character of the contraction becomes sluggish. For the treatment of muscles suffering from reaction of degeneration the galvanic current alone is effective. The faradic current is ineffective unless its voltage is enormously increased, in which case the intensity would be great and the excitation very painful. It is thus ineffective as a practical method of producing contractions. It is necessary to remember that several factors are concerned in the production of contractions in muscle by electrical stimulation; the current must have a minimum of intensity, and this minimum current, in order to be effective, must last for a definite time, this representing the velocity of excitability of the muscle. In normal muscles this is about one-thousandth part of a second; in paralyzed muscles velocity of excitability is much slower, and a current may have to act for one-twenty-fifth of a second to produce contraction in a degenerate muscle. Hence the ordinary faradic current is ineffective for producing contractions in paralyzed muscles. The practical problem in the treatment of muscles by electrical stimulation would appear to consist in the selection of that particular type of current that will give the best contractile response.

Cooper concludes his excellent article as follows:

1. Excluding the muscular dystrophies and injury due to trauma and toxins, all muscular atrophy is of the disuse type—that is, it is caused by suspension of the normal function of contraction and relaxation.

2. The condition and tone of a muscle are largely dependent on their function—interchange between the cell and surrounding lymph taking place during contraction and relaxation.

3. Prevention of atrophy and restoration of atrophied muscles by rhythmic contractions is therefore a reasonable line of treatment.

4. Artificial stimulation of muscle conserves the nervous energy of the patient and in most cases of injury is the only method that can be employed.

5. Of methods of artificial stimulation electrical is the most valuable.

6. Treatment by electrical stimulation is governed by the consideration of two factors: (1) The degree of contraction produced; (2) degree of pain caused by the stimulation.

7. Pain is largely a matter of the length of waves employed and the uniformity of the interruptions.

8. Apparatus devised to give a uniform type of interruption yields the best results.

9. Fatigue is a toxic phenomenon due to accumulation of lactic acid. There is no risk of fatigue if a proper blood-supply is ensured and a short interval allowed between the contractions.

10. Practical experience has demonstrated the value of artificial stimulation in restoring the condition of wasted muscles and in preventing atrophy.

Malignant Measles.—Rest in bed, warmth, good ventilation, and light, stimulating, nourishing diet suitable to the individual case is essential says O'Shea (*The Practitioner*, Dec. 1919) in this grave malady. The special point to be noted in connection with the malignant forms is the treatment of the pyrexia, nervous disturbances, and the eruption. With regard to the high temperature, the best method of reducing it and thereby relieving the headache and great discomfiture present, is sponging the skin, small surfaces at the time, with tepid water. This method is fraught with less danger than the tepid bath or tepid pack. In cases in which there is sudden retrocession of the rash, the patient must be placed in a warm mustard or ordinary hot bath, and warm drinks given. The eruption may possibly be brought out thus, but both procedures are attended by a certain amount of risk, and cannot be carried out in every case—for instance, when the patient's temperature is already higher than is safe. In connection with this point, it may be mentioned that some writers advocate treating the hyperpyrexia of typhoid fever by hot sponging. The explanation is that it has as its object the dilatation of the superficial vessels to cool the blood in quantities; it is used when the temperature approaches 105° F., and the heart is so depressed that cold or tepid applications will not lead to a favorable result. To be successful the water used must be as hot as the patient can comfortably endure, and the sponging must last only four minutes. With the exception of the lower extremities, the patient, as a rule, is afterwards covered only with a sheet for a half an hour.

As regards the nervous disturbances, they are caused by the high temperature and toxic condition of the blood. When these are of a mild character, namely, headache, restlessness, and slight delirium, they usually disappear under the remedial measures taken to reduce the fever and bring out the rash. The more serious manifestations, namely, meningitis and its attendant symptoms, assume a grave aspect and, unless quickly and successfully treated, end the case fatally.

The head must be shaved, an ice-bag applied, and leeches put over the temples or behind the ears. The patient must be kept very quiet, and the room darkened. Bromides or chloral can be given by the mouth or rectum, and, in some instances, it may be necessary to give frequent inhalations of chloroform to ease the convulsions which occur towards the end of fatal cases. Bronchopneumonia is usually present in these cases, which are invariably fatal.

In bad cases saline infusions should be given, to dilute the poison and to help the failing circulation, due to the diarrhea and troublesome vomiting which sometimes occur in toxic cases. This procedure also alleviates the anguishing thirst always present. Pallor, pinching of the face, and a small, weak pulse are indications for immediate saline infusion. Oxygen is also indicated at this stage, when the cyanosis begins to tell on the heart. Abdominal distention may be present in cases complicated by broncho-

pneumonia, and may be a source of great anxiety to the physician. This requires immediate attention, and 5-15 mm. of turpentine, according to the age of the patient, may be given orally if there is no renal trouble, or 5*ii*-*ji* of turpentine per rectum in one pint of starch mucilage, and a little ice to the abdomen. When the kidneys are diseased, intestinal antiseptics should be administered, instead of turpentine, and, of these, bismuth salicylate is the best. Tonics, cod liver oil especially, are indicated during convalescence.

Camphor in Acute Influenzal Bronchitis and Bronchopneumonia.—Giuseppe, in the *British Medical Journal* of December 28, 1918, discusses the recent outbreak of influenza at Felixstowe, England. He treated 250 cases with camphor, with a mortality of one—a man who died after three days' illness from bronchopneumonia.

The incidence of bronchopneumonia in the 250 cases was 26, or 10 per cent.; in another series of 200 cases during the same outbreak, and untreated with camphor, the incidence was 8 per cent., but the number of deaths was 4, a mortality of 2 per cent. The outbreak was very severe, and the cases treated ranged in severity from very acute to mild. The temperature varied from 105.5° to 100° F.

The treatment adopted was the administration of pills containing four grains of camphor made up with soap, in mild cases three times daily and in the very acute cases every three hours. The treatment was continued until the temperature dropped and the signs of bronchitis or bronchopneumonia cleared up. A typical case may be of interest.

A boy, aged ten, was suddenly taken ill on September 6 with acute pains in the back and head. When seen the temperature was 105.6° F., pulse 120. There was slight cyanosis, and marked and widespread signs of bronchitis and patches of bronchopneumonia were found over both lungs. On September 7 the boy became unconscious. The camphor pills were begun on September 8, after the unconsciousness had lasted thirty-six hours. Pulse 130, temperature 104.8° F. Within twenty-four hours the boy recovered consciousness. The signs in the lungs slowly cleared up, and the chest became normal on September 12.

There was no doubt in the minds of those who watched the boy that his recovery was entirely due to the camphor. The only other treatment was a diaphoretic mixture, which was stopped on September 9.

The effect of camphor in large doses is very marked, and tho the number of cases treated is too small to allow Giuseppe to describe it as a specific he thinks there can be no doubt, from the difference in the mortality in the two series of cases treated during the same outbreak with and without camphor, that the curative action of camphor is remarkable. Certainly its effect in clearing up the lungs and lowering the temperature far surpasses that of any other drug that has been tried by this writer.

The Modern Treatment of Empyema by Anti-septics.—Stoney, in *The British Medical Journal*, says that acute empyema is easily cured by simple surgical methods. Thru neglect or inefficient surgical treatment the lung and diaphragm, become covered by granulation tissue which by its further development into fibrous renders the cavity non-collapsible and chronic empyema results. This condition is difficult or impossible to cure even by extensive Estlander or Schede thoracoplasty.

Most if not all cases can be cured without resorting to such dangerous and mutilating operations, because it is not necessary to obliterate the pleura space but merely to render its walls sterile, and this is possible by frequent washings with hypochlorite solution. The treatment is not dangerous if a free exit for the fluid is provided.

The earlier the treatment is instituted, the sooner and more surely will a cure be obtained. The opening is most suitably made by removing one inch of the eighth rib in the scapular line. Three illustrative cases are reported.

Treatment of Bites.—In the treatment of the bites and stings of poisonous insects, slices of raw onion placed over the parts, binding it on firmly and changing it once in two or three hours, has been found very efficacious.—*Practical Med. & Surgery* (Nov. 1919).

Treatment of Heart Disease.—We rarely treat heart disease, says Shattuck, in a recent issue of the *Boston Medical and Surgical Journal*. We may use salicylates in rheumatic endocarditis, potassium iodide for a syphilitic heart, or rest and time for a weak heart, but aside from these cases we usually treat patients who have diseased hearts. If compensation is good and the lesion apparently not progressive, the patient should live so as to maintain myocardial nutrition. He is more likely to do this if he knows why, so it is usually best to be frank and to tell him when his heart is affected. When compensation is inadequate the patient appreciates better his need of help. The major marks of myocardial failure are edema, pain and shortness of breath. To meet the edema, we reduce the load on the heart, mainly by rest, or stimulate its power. When the right ventricle is greatly over-distended, venesection up to a pint or more may have an almost miraculous effect, and this may pave the way for digitalis, which would be of no use until the right ventricle was relieved. A patient subject to angina should never be without a nitrite ready for use, but the all-important therapy is a regulation of the mode of life. The innocent and the grave cases vary more in prognosis than in treatment. Every effort should be made to avoid bringing on pain. Sometimes it is well to put the patient to bed for a week or two.

Usually it is enough to limit activity to that which is compatible with comfort. The details of medicinal treatment depend on the origin of the angina. We can add years of comfort and activity to life by inducing patients to adapt their lives to their powers.

Treatment of Acute Gonorrhea in Women.—The treatment of acute gonorrhea in the early stage before pus formation is, according to Kemper (*Eclectic Med. Jour.*, Dec. 1919), to put the patient to bed, keep bowels open, and apply lotions of lead water and alcohol. As soon as pus is detected it should be evacuated by a free incision made on the inner surface of the great lip. The cavity should be curetted, washed with a 1 to 1,000 bichloride solution and packed with iodoform gauze, which should be changed frequently. The cavity must be made to heal from the bottom.

The chronic form is very difficult to cure, it often being necessary to dissect out the entire gland.

Gonorrhreal salpingitis and oophoritis frequently follow gonorrhreal metritis by continuity of tissue. The inflammation of the tubes and ovaries is not characterized by any pathognomonic symptoms, endometritis producing about the same symptoms—painful, irregular, profuse menstruation, attacks of pelvic peritonitis, and often a rapid loss of health.

The tubes may become filled with pus and this pus escape into the uterus, or it may make a way into the bowel and the case make a spontaneous recovery. It may escape thru the fimbriated extremity or ulcerate thru the tube and produce a very severe or fatal case of peritonitis.

The involvement of the tubes nearly always causes the ovaries to become diseased, first a parovaritis, followed by atrophy and cyst formation of the ovary.

The diagnosis is best made by bimanual examination with the patient well under a general anesthetic.

Treatment of the acute stage is rest in bed, hot vaginal douches, free movements of the bowels until the acute stage has passed. When the disease becomes well localized an abdominal operation should be done to remove the diseased parts.

Acute Perimetritis.—This complication is more likely to occur during pregnancy or after childbirth. The symptoms are those of acute pelvic peritonitis and septic absorption—pain, tenderness, vomiting, fever—and in a few days may terminate fatally. Usually resolution takes place.

The chronic form is characterized by persistent pain and tenderness. Every jar, strain or coitus is very painful or unbearable.

Treatment is rest in bed, antiseptic vaginal douches, bowels kept open with salines until the acute stage is past. If it is found that pus tubes are the cause of the trouble they should be removed.



Maternal Impressions in New Mexico.—In the November number of *Man* Elsie Clews Parsons gives an account of the customs relating to childbirth as practised in the Indian town of Zuñi, New Mexico. If a child has a rash it is due to the fact that before its birth the mother tested the heat of her oven by sprinkling bran in it. To cure the rash the mother soaks some bran in water and rubs it over the baby. If the baby has sores, which look like the spots of paint on a mask which the mother has seen worn by the father during her pregnancy, the rash is said to be cured by putting spots of paint on the baby and, at the same time, on the mask, like curing like being a characteristic of Zuñi thought. Masks seen by the mother in her pregnancy may also cause disfigurement in the baby, in which case the father puts on the mask, dances till he sweats, and with his sweat the baby is anointed. If a baby cries a great deal it is because its father sang a great deal before it was born, and for such crying there is no remedy. Other curious beliefs are the changing of the unborn girl into a boy should a man be present in the lying-in chamber; movement of the fetus on the right side the sign of a girl, and on the left side the sign of a boy; and the swallowing of a bean to produce easy delivery. The idea in the latter case is that just as the bean slips down with ease so the delivery will be easy.

Marriage Laws and Eugenics.—Does the average layman understand the real intent and purposes of the constructive legislation regulating the marriage of the "unfit" or diseased person, asks an editorial writer in the *Southern Med. Jour.* (Dec. 1919). Is it that the scope of their comprehension limits the thought merely to gonorrhea and syphilis? In truth, do the laws that have been enacted by several states strive for eugenic marriages, or are these special laws a mere weapon in the hands of the venereal disease antagonist? Any step that tends to promote a high standard of the human species should be endorsed by all. In order that the reaction following the evolution of such radical measures should be wholesome and cooperative, it seems to *The Journal* of prime importance to insist upon enlightenment and upon placing the basic principles of such movements upon a liberal and substantial basis.

No set of men in the whole world sees more vividly the fearful and far-reaching conse-

quences of the union of units than the physician. The annals of penitentiaries, reformatories, asylums for the insane, institutions for the feeble-minded, hospitals for epileptics, homes for the blind and for the deaf mute, almshouses, county jails and work-houses are fruitful for medical investigations among the unfortunates taken from the daily walk of life. It is evident that the medical profession has been somewhat remiss in urging ways and means for protecting society against the degenerate, whether unrestrained or in an institution.

As an instance of the cost of supporting a family that may spring from a degenerate, the following is presented by Dugdale in his classic investigation, "The Jukes, A Study of Crime, Pauperism, Disease and Heredity." From the early half of the eighteenth century to the end of the nineteenth century the known descendants of Jukes numbered 1,200. The aggregate cost of this family to the State of New York was known to have been \$1,308,000.

The physician views the problem of marriage as one for the propagation of the species. He realizes the immutable laws of heredity and therefore assumes that the character units of one or the other parent are transmitted to the offspring in whole or in part. There are two varieties of character units—the agenic units, those that tend to destroy or to deteriorate the race; and the eugenic units, those that tend to improve the race. Under the agenic units may be found defective physiques, feeble-mindedness, epilepsy, insanity, pauperism, alcoholism and drug habitués, syphilis, criminality, certain nervous diseases, defects of speech, including deaf-mutism, etc. Under the eugenic units may be mentioned strong physique, mental ability, aptitude for the arts and sciences, memory, morality and temperament.

From the foregoing it is apparent that the problem as presented in recent laws dealing specifically with venereal diseases may fail to be solved unless augmented by the concerted efforts of the physician and the public health educator. It is well to emphasize the importance of venereal diseases, but what of bringing facts concerning reproduction into homes, before societies and leagues devoted to a study of the great question? What of moulding public opinion, which is but the father of public action?

The marriage laws as they stand are good, but fall far short in furnishing the solution. Charles Reed, in his book on "Marriage and Genetics," concludes: "A theme that thus deals with the deepest sentiment and the profoundest welfare of the human individual and with the family considered as the unit of society, here and now as well, must be approached in full appreciation of ascertained facts and be discussed in the light of natural laws underlying the problem."

May it not be asked, do our legislators, our courts, our officials of the law, our institutions and our profession deal with the question as presented? Should concentration be made on one phase of the problem, or should attempts

be directed to strengthening the germ plasm of this and future generations?

A Simple and Practical Method of Catheterization.—Those who have taught pupil nurses to catheterize, and who have watched their work closely, will, states Ida Gaeley (*Modern Hospital*), agree that the points in the procedure most difficult for the average pupil nurse to grasp are, *i. e.*: (1) How to keep their hands from conveying infectious materials into the meatus; (2) to be able to find easily the meatus urinarius, especially in puerperal patients, where the labiae are swollen. To remedy this I have adopted the technic outlined in the succeeding paragraphs:

Equipment.

One sterile tray containing:

1. One sterile pan, containing two perfect glass catheters, each having five inches of rubber tubing attached to its distal end.

2. One sterile pitcher containing one quart of sterile antiseptic solution of proper strength for flushing.

3. One sterile wide-mouth glass bottle, capacity at least one quart, of special design for this purpose only.

4. One package of three sterile towels.

5. One pair of good sterile gloves.

Additional supplies: Douche pan, draping sheet, and screen for bedside.

Procedure.

1. The pupil takes tray and other supplies to bedside and places screen around bed.

2. She washes her hands carefully and dries them on clean towel.

3. Puts patient on douche pan, drapes with clean sheet, folding bed covers to foot of bed.

4. Places the tray at patient's feet.

5. Opens sterile packages—puts on sterile gloves.

6. Places one sterile towel over pubic region and one over thigh next pupil.

7. Picks up handle of pitcher with extra sterile towel with right hand. With thumb and forefinger of left hand separates labiae at the uppermost point, and holds them well separated.

8. The solution is poured from pitcher in right hand with some force, so that the flow strikes against the meatus, thereby opening it, and at the same time washing infectious material downward from it, thus cleansing the orifice.

9. Still holding the labiae apart—not letting them fall together for one instant—the pupil sets the pitcher on the tray, picks up the catheter at the rubber end, and kinks the rubber as she inserts the catheter into the meatus.

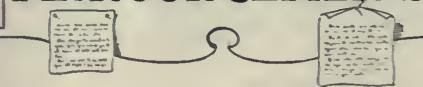
10. Then releasing the thumb and forefinger of left hand, with them she holds rubber end of catheter closed until, with right hand, she places the bottle in douche pan, directing rubber end into it, allowing the urine to flow directly into a sterile container, thus providing a sterile specimen if same is wanted for examination.

The rest of the technic is the same as is usually taught; pressure over the suprapubic region, and reaching recesses of the bladder by gentle turning of the catheter to facilitate the flow of urine.

The catheter must always be inspected before insertion for cracks or imperfections, and for that reason or in case of accident I instruct pupils to sterilize two catheters for each catheterization.

After the urine ceases to flow the pupil flushes the labiae, removes patient from the douche pan, dries the buttocks, and makes the bed toilet.

NEWS NOTES AND ANNOUNCEMENTS



Samuel D. Gross Prize.—The Philadelphia Academy of Surgery announces that essays will be received in competition for the Samuel D. Gross prize of \$1,500 until January 1, 1920.

The conditions annexed by the testator are that the prize "shall be awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subjects in surgical pathology or surgical practice, founded upon original investigations, the candidates for the prize to be American citizens."

It is expressly stipulated that the competitor who receives the prize shall publish his essay in book form, and that he shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery.

The essays, which must be written by a single author in the English language, should be sent to the "Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 19 S. 22d St., Philadelphia," on or before January 1, 1920.

Nutritional Research.—The National Research Council has formed a special committee on food and nutrition problems which will devote its attention to important problems connected with the nutritional values of food, for both human and animal use.

The committee, with the support of the council, is arranging to obtain funds for the support of its researches, and will get under way, just as soon as possible, certain specific investigations already formulated by individual committee members and subcommittees. These include

studies of the comparative food values of meat and milk and of the conditions of production of these foods in the United States, together with the whole problem of animal nutrition; the food conditions in hospitals, asylums and similar institutions; the nutritional standards of infancy and adolescence; the formation of a national institute of nutrition, and other problems.

The members are: Carl Alsberg, chief of the Bureau of Chemistry, Department of Agriculture; H. P. Armsby, director of Institute of Animal Nutrition, Pennsylvania State College; Isabel Bevier, director of department of home economics, University of Illinois; E. B. Forbes, chief of the department of nutrition, Ohio Agricultural Experiment Station; W. H. Jordan, director, New York Agricultural Experiment Station; Graham Lusk, professor of physiology, Cornell University Medical College; C. F. Langworthy, chief of office of home economics, Department of Agriculture; E. V. McCollum, professor of biochemistry, School of Public Health and Hygiene, Johns Hopkins University; L. B. Mendel, professor of physiological chemistry, Yale University; J. R. Murlin, professor of physiology and director of department of vital economics, University of Rochester; R. A. Pearson, president of Iowa State Agricultural College; H. C. Sherman, professor of food chemistry, Columbia University; A. E. Taylor, Rush professor of physiological chemistry, University of Pennsylvania, and A. F. Woods, botanist, president of Maryland State College of Agriculture.

Destruction of Bedbugs.—Bertrand, Brocq-Rousseau, and Dassonville (*Presse médicale*, September 18, 1919) found that bedbugs were destroyed by amounts of chloropicrin sufficiently small to permit the practical use of the compound for this purpose. The proper quantity per cubic metre of room space is from four to ten grams. Destruction of the ova is not insured by a single exposure to the agent. Consequently, the hatching period for these ova being about a week, a second exposure should be made about two weeks after the first.

Army Medical Corps Keep Effective 93½%; Out of 195,000 Wounded, 182,000 Have Recovered.—The record of the Army Medical Department in dispatching its duties of war stands out in bold relief as one of the greatest accomplishments in the records of medicine.

RECORD OF DISEASES COMBATED

Statistics show beyond all dispute that the American Army was the healthiest and cleanest army that ever fought. By far the greatest toll of deaths from disease was taken by pneumonia and influenza during the general epidemic that at the time was world wide. Deaths in the Army from this cause are placed at 8,000. There were only 1,000 cases of typhoid, fifty of which

were fatal; venereal cases never exceeded 4 per cent., an exceedingly low figure in an army in the field. Dysentery was present at one time, but this was checked before it reached the epidemic stage.

When the American troops arrived in France, there was great difficulty in securing hospital space and the first wounded found themselves housed in all manner of buildings, from choice edifices of imperial foundation down to humble and none too clean municipal halls in the French villages. There were, at the close of the war, 153 base hospitals, sixty-six camp hospitals, and twelve convalescent camps in France alone. One of the best known hospitals was that established in the Ecole de la Legion d'Honneur, at St. Denis, quite close to Paris, where many of the wounded from Chateau-Thierry were brought.

IMPROVING YANK HOSPITALS

The great Haviland china factory at Limoges was turned over to the Americans for hospital purposes and the library of Orleans was stripped of 100,000 books to make room for the narrow cots and operating tables. In Vichy, hospitals were established in eighty-seven hotels, while seventy other hostelleries were similarly converted in and around Vittel and Contrexeville. Two of the outstanding features of American hospital work in France were the greatest hospital centers such as Mesves with 25,000 beds and the mushroom 1,000-bed "Type A" hospitals, that standardized all American-built hospitals in France.

Summing it up, the Army Medical Corps and the Red Cross were able to keep 93½ per cent. of the fighting forces effective for duty at all times and of the remaining 5.7 per cent. only 3.4 per cent. were incapacitated thru disease. This is a record on which the Army and the Red Cross can look back with satisfaction.

German Money in Bushel Lots.—It took a bushel of German paper money to enroll the boys of Company A, Eighth Infantry of the American Army of Occupation during the recent Red Cross Roll Call. With the rate of exchange standing at thirty marks for a dollar, the physical detail of counting and sending the collections was no small task.

Before the official date for opening the drive in the United States the company, consisting of 250 men, enrolled one hundred per cent.

This unit was the first organization in the Army of Occupation to be paid on that day. It had previously been announced that the Roll Call would start that evening.

"Let's beat 'em to it," said a lieutenant.

"Atta boy," responded the company, and forthwith at Fort Constantine, on the west side of the Rhine, there was a shower of marks like the fall of autumn leaves. When the names were all checked off, a large bale of marks was left over and many men had two and three memberships coming to them.

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